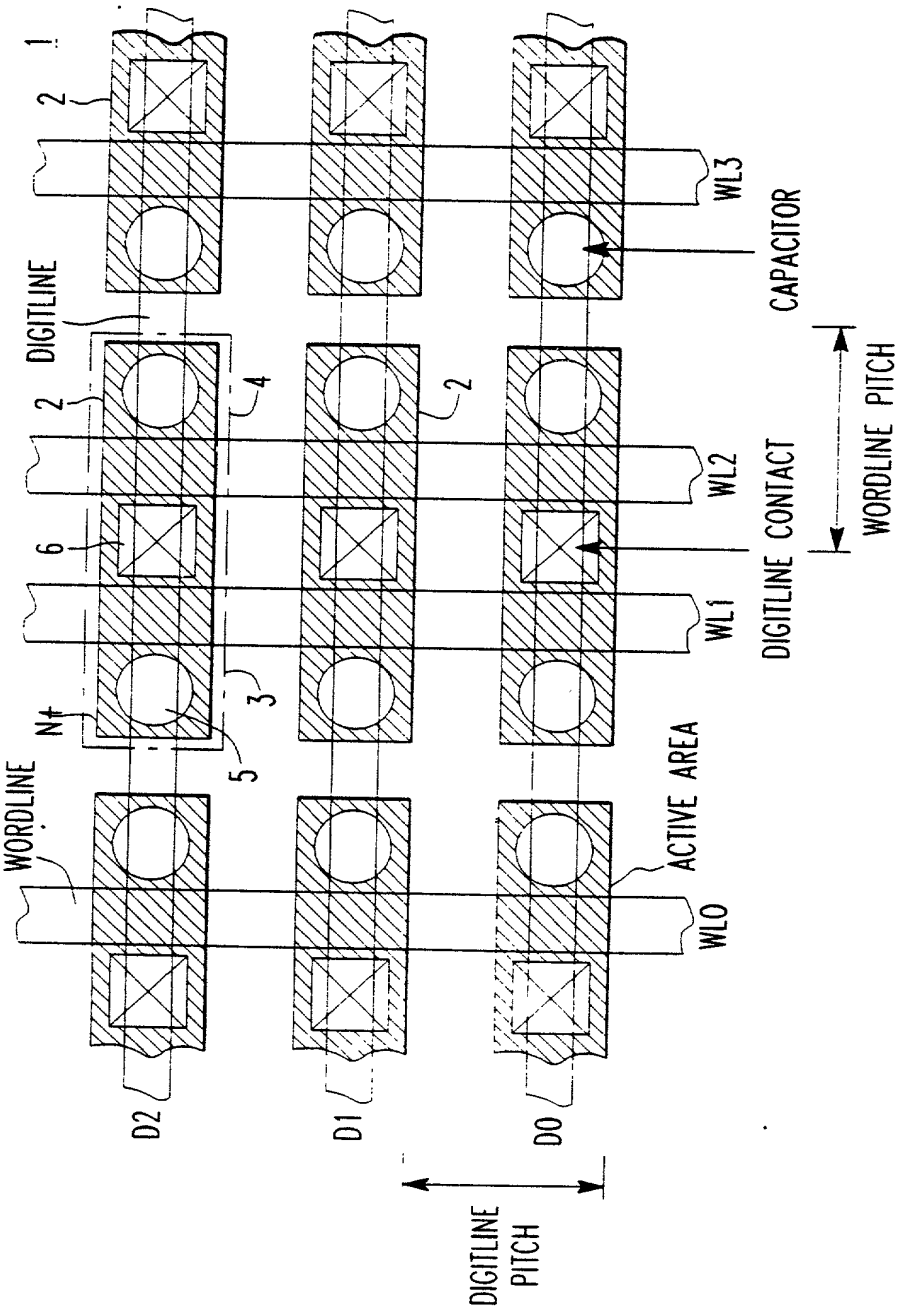

WORDLINE
N+
DIGITLINE
ACTIVE AREA
CAPACITOR
DIGITLINE CONTACT
WORDLINE PITCH
DIGITLINE PITCH
WL0
WL1
WL2
WL3
D0
D1
D2
1
2
3
4
5
6

FIG. 1

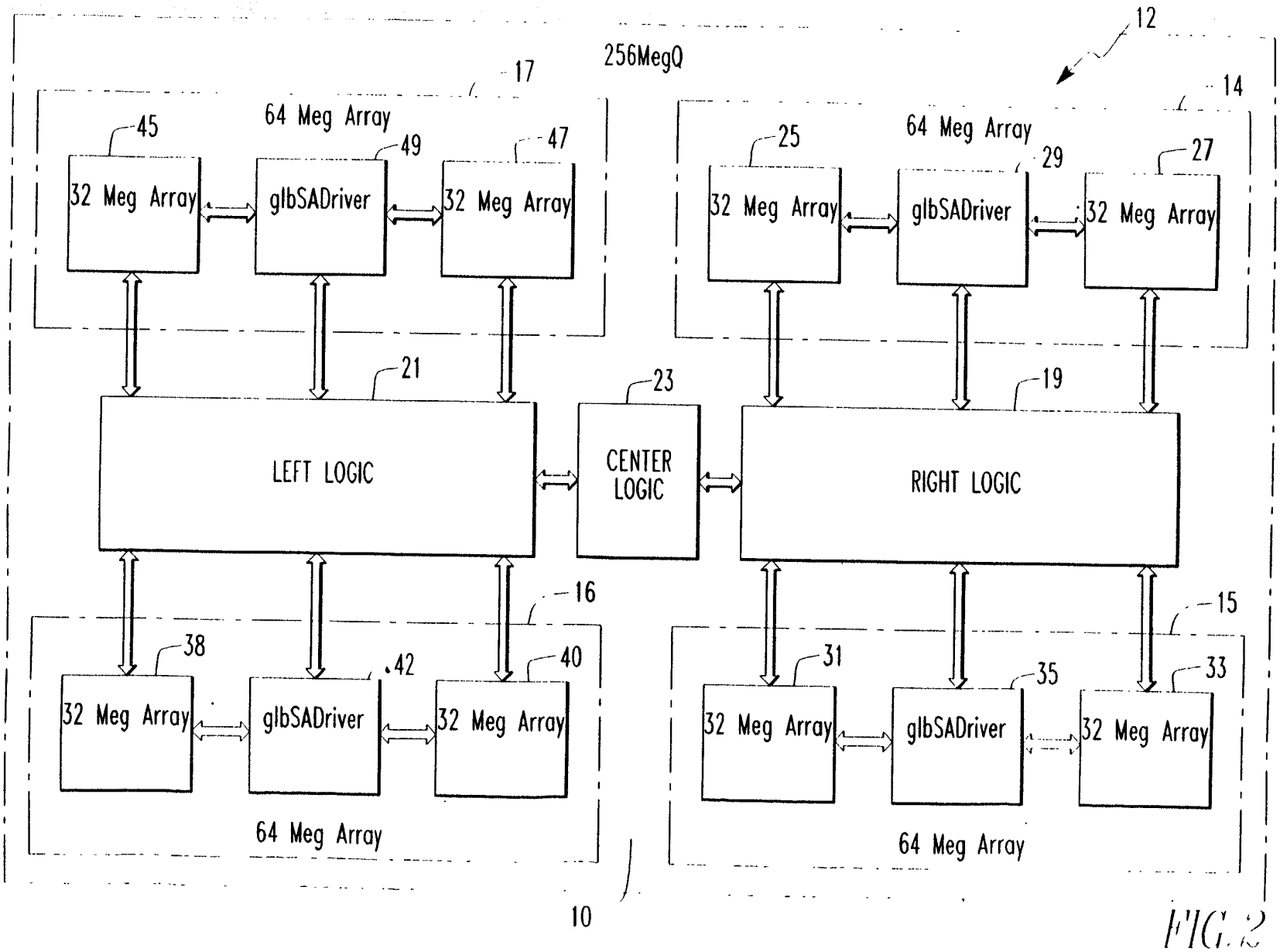

256MegQ
12
17
64 Meg Array
45
32 Meg Array
49
glbSADriver
47
32 Meg Array
14
64 Meg Array
25
32 Meg Array
29
glbSADriver
27
32 Meg Array
21
LEFT LOGIC
23
CENTER LOGIC
19
RIGHT LOGIC
16
38
32 Meg Array
42
glbSADriver
40
32 Meg Array
64 Meg Array
15
31
32 Meg Array
35
glbSADriver
33
32 Meg Array
64 Meg Array
10

FIG. 2

2,387

FIG. 3A

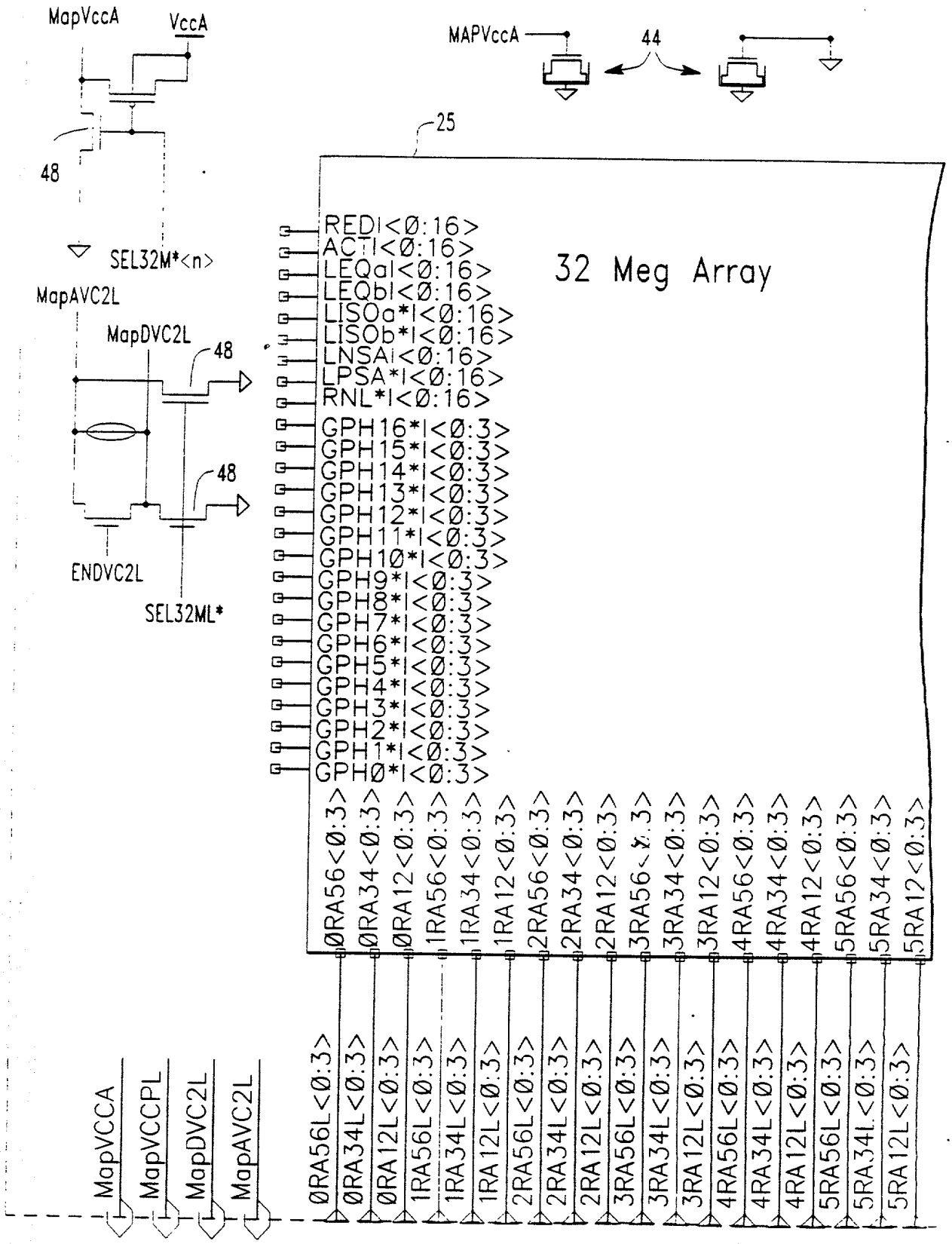

MapVccA
VccA
48
SEL32M*<n>
MapAVC2L
MapDVC2L
48
48
ENDVC2L
SEL32ML*
MAPVccA
44
25
32 Meg Array
REDI<0:16>
ACTI<0:16>
LEQaI<0:16>
LEQbI<0:16>
LISOa*I<0:16>
LISOb*I<0:16>
LNSAI<0:16>
LPSA*I<0:16>
RNL*I<0:16>
GPH16*I<0:3>
GPH15*I<0:3>
GPH14*I<0:3>
GPH13*I<0:3>
GPH12*I<0:3>
GPH11*I<0:3>
GPH10*I<0:3>
GPH9*I<0:3>
GPH8*I<0:3>
GPH7*I<0:3>
GPH6*I<0:3>
GPH5*I<0:3>
GPH4*I<0:3>
GPH3*I<0:3>
GPH2*I<0:3>
GPH1*I<0:3>
GPH0*I<0:3>
0RA56<0:3>
0RA34<0:3>
0RA12<0:3>
1RA56<0:3>
1RA34<0:3>
1RA12<0:3>
2RA56<0:3>
2RA34<0:3>
2RA12<0:3>
3RA56<0:3>
3RA34<0:3>
3RA12<0:3>
4RA56<0:3>
4RA34<0:3>
4RA12<0:3>
5RA56<0:3>
5RA34<0:3>
5RA12<0:3>
0RA56L<0:3>
0RA34L<0:3>
0RA12L<0:3>
1RA56L<0:3>
1RA34L<0:3>
1RA12L<0:3>
2RA56L<0:3>
2RA34L<0:3>
2RA12L<0:3>
3RA56L<0:3>
3RA34L<0:3>
3RA12L<0:3>
4RA56L<0:3>
4RA34L<0:3>
4RA12L<0:3>
5RA56L<0:3>
5RA34L<0:3>
5RA12L<0:3>
MapVCCA
MapVCCPL
MapDVC2L
MapAVC2L

FIG. 3B

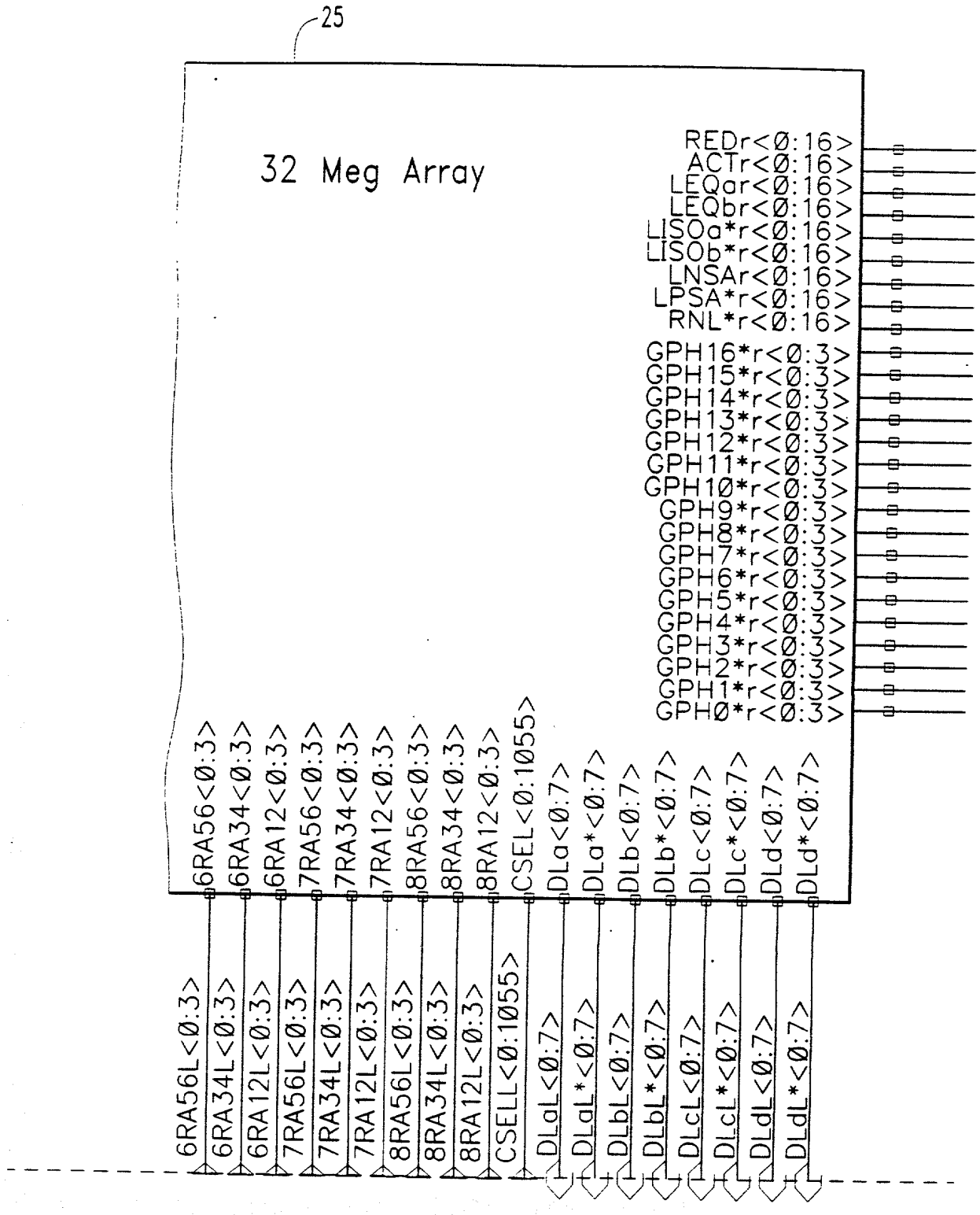

25
32 Meg Array
REDr<0:16>
ACTr<0:16>
LEQar<0:16>
LEQbr<0:16>
LISOa*r<0:16>
LISOb*r<0:16>
LNSAr<0:16>
LPSA*r<0:16>
RNL*r<0:16>
GPH16*r<0:3>
GPH15*r<0:3>
GPH14*r<0:3>
GPH13*r<0:3>
GPH12*r<0:3>
GPH11*r<0:3>
GPH10*r<0:3>
GPH9*r<0:3>
GPH8*r<0:3>
GPH7*r<0:3>
GPH6*r<0:3>
GPH5*r<0:3>
GPH4*r<0:3>
GPH3*r<0:3>
GPH2*r<0:3>
GPH1*r<0:3>
GPH0*r<0:3>
6RA56<0:3>
6RA34<0:3>
6RA12<0:3>
7RA56<0:3>
7RA34<0:3>
7RA12<0:3>
8RA56<0:3>
8RA34<0:3>
8RA12<0:3>
CSEL<0:1055>
DLa<0:7>
DLa*<0:7>
DLb<0:7>
DLb*<0:7>
DLc<0:7>
DLc*<0:7>
DLd<0:7>
DLd*<0:7>
6RA56L<0:3>
6RA34L<0:3>
6RA12L<0:3>
7RA56L<0:3>
7RA34L<0:3>
7RA12L<0:3>
8RA56L<0:3>
8RA34L<0:3>
8RA12L<0:3>
CSELL<0:1055>
DLaL<0:7>
DLaL*<0:7>
DLbL<0:7>
DLbL*<0:7>
DLcL<0:7>
DLcL*<0:7>
DLdL<0:7>
DLdL*<0:7>

FIG. 3C

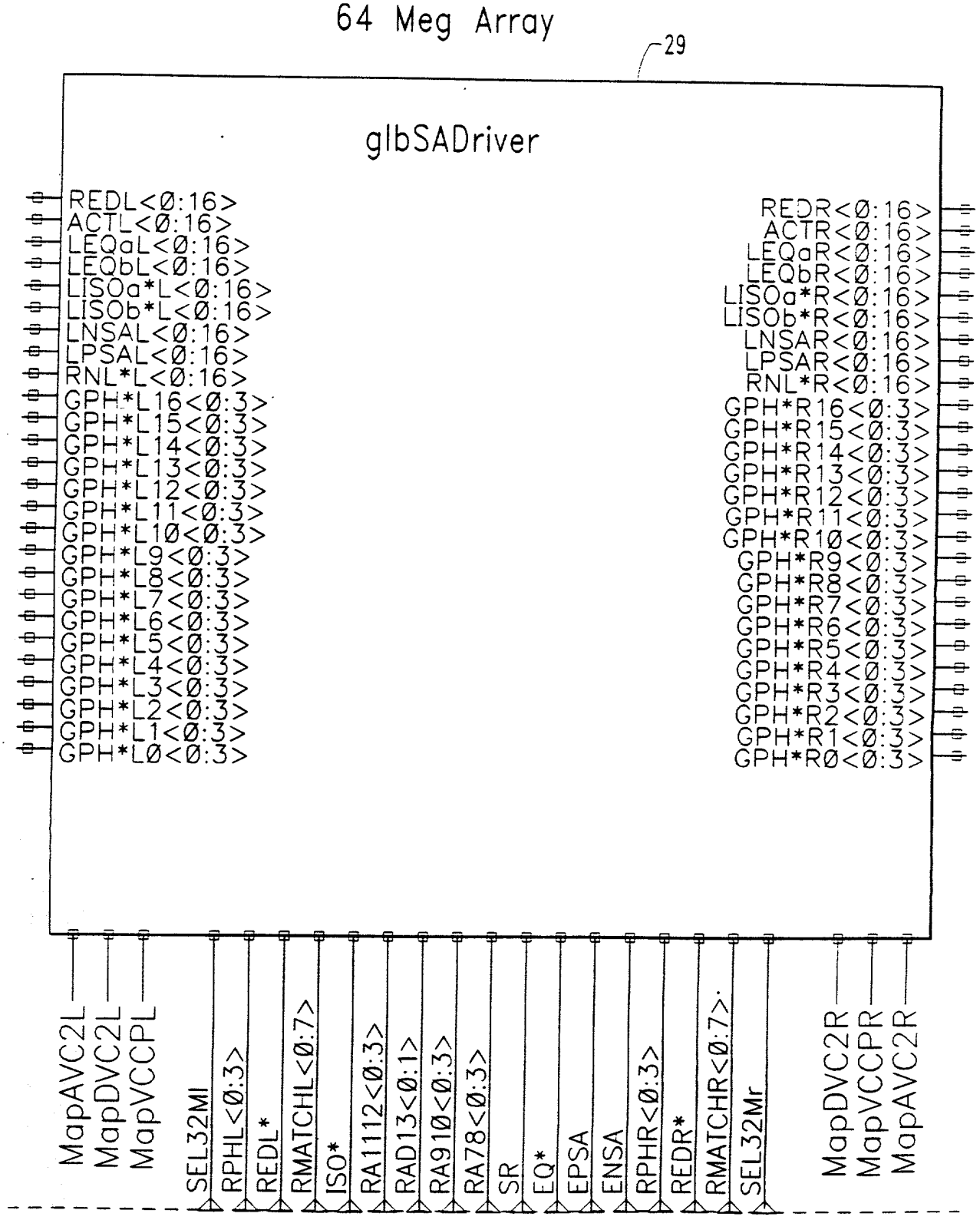

64 Meg Array
29
glbSADriver
REDL<0:16>
ACTL<0:16>
LEQaL<0:16>
LEQbL<0:16>
LISOa*L<0:16>
LISOb*L<0:16>
LNSAL<0:16>
LPSAL<0:16>
RNL*L<0:16>
GPH*L16<0:3>
GPH*L15<0:3>
GPH*L14<0:3>
GPH*L13<0:3>
GPH*L12<0:3>
GPH*L11<0:3>
GPH*L10<0:3>
GPH*L9<0:3>
GPH*L8<0:3>
GPH*L7<0:3>
GPH*L6<0:3>
GPH*L5<0:3>
GPH*L4<0:3>
GPH*L3<0:3>
GPH*L2<0:3>
GPH*L1<0:3>
GPH*L0<0:3>
REDR<0:16>
ACTR<0:16>
LEQaR<0:16>
LEQbR<0:16>
LISOa*R<0:16>
LISOb*R<0:16>
LNSAR<0:16>
LPSAR<0:16>
RNL*R<0:16>
GPH*R16<0:3>
GPH*R15<0:3>
GPH*R14<0:3>
GPH*R13<0:3>
GPH*R12<0:3>
GPH*R11<0:3>
GPH*R10<0:3>
GPH*R9<0:3>
GPH*R8<0:3>
GPH*R7<0:3>
GPH*R6<0:3>
GPH*R5<0:3>
GPH*R4<0:3>
GPH*R3<0:3>
GPH*R2<0:3>
GPH*R1<0:3>
GPH*R0<0:3>
MapAVC2L
MapDVC2L
MapVCCPL
SEL32MI
RPHL<0:3>
REDL*
RMATCHL<0:7>
ISO*
RA1112<0:3>
RAD13<0:1>
RA910<0:3>
RA78<0:3>
SR
EQ*
EPSA
ENSA
RPHR<0:3>
REDR*
RMATCHR<0:7>
SEL32Mr
MapDVC2R
MapVCCPR
MapAVC2R

FIG. 3D

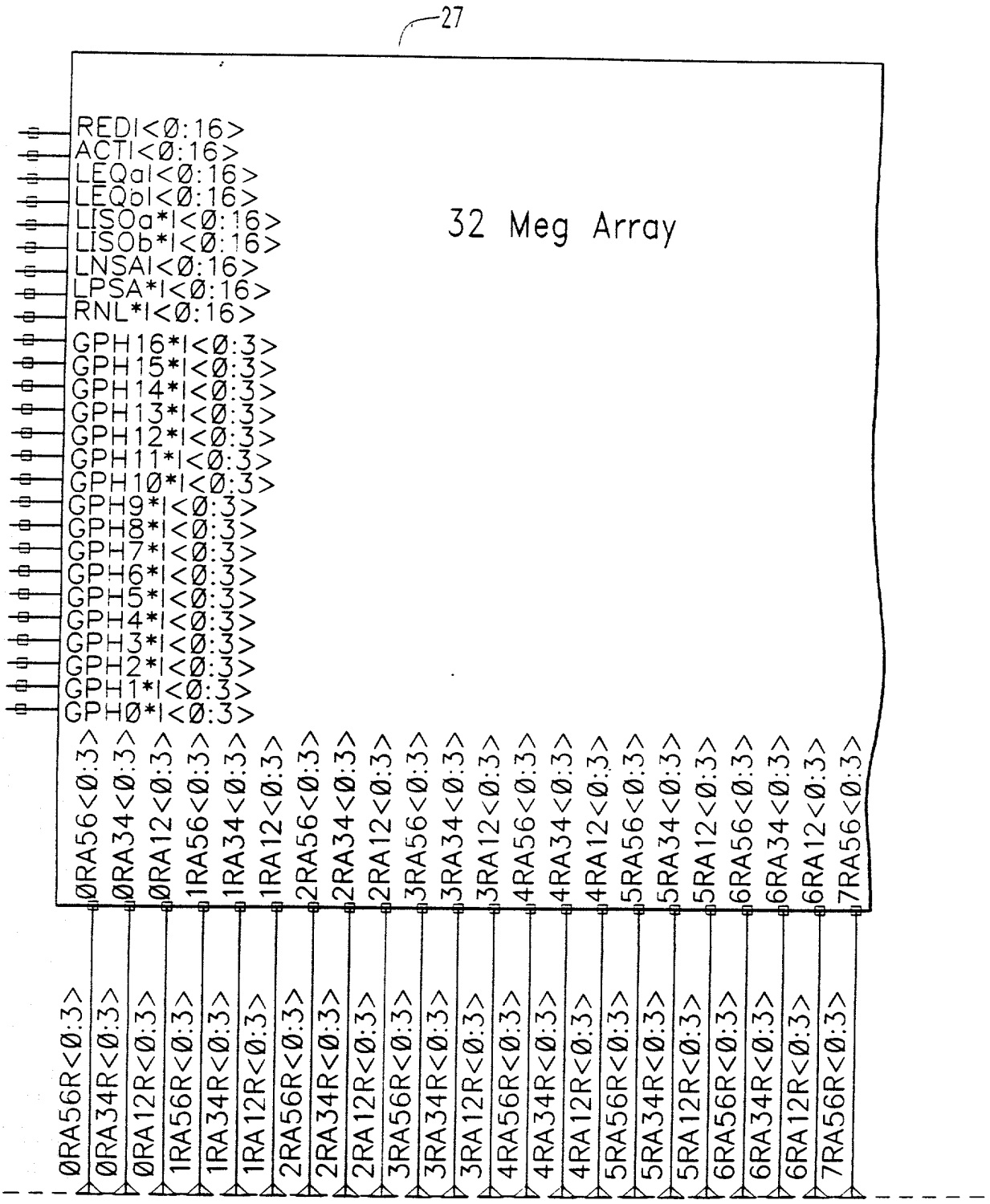
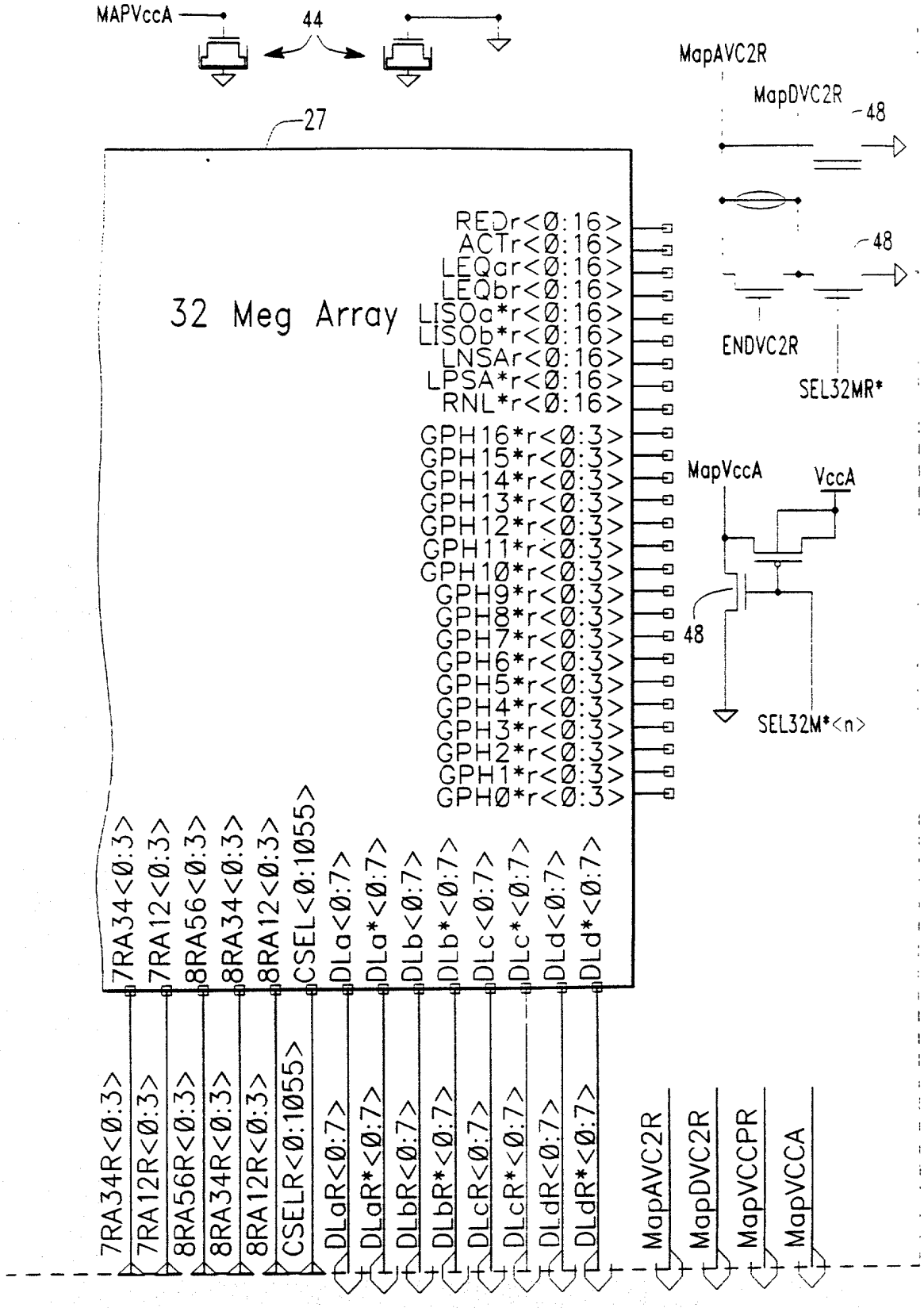

27
32 Meg Array
REDI<0:16>
ACTI<0:16>
LEQai<0:16>
LEQbi<0:16>
LISOa*I<0:16>
LISOb*I<0:16>
LNSAI<0:16>
LPSA*I<0:16>
RNL*I<0:16>
GPH16*I<0:3>
GPH15*I<0:3>
GPH14*I<0:3>
GPH13*I<0:3>
GPH12*I<0:3>
GPH11*I<0:3>
GPH10*I<0:3>
GPH9*I<0:3>
GPH8*I<0:3>
GPH7*I<0:3>
GPH6*I<0:3>
GPH5*I<0:3>
GPH4*I<0:3>
GPH3*I<0:3>
GPH2*I<0:3>
GPH1*I<0:3>
GPH0*I<0:3>
0RA56<0:3>
0RA34<0:3>
0RA12<0:3>
1RA56<0:3>
1RA34<0:3>
1RA12<0:3>
2RA56<0:3>
2RA34<0:3>
2RA12<0:3>
3RA56<0:3>
3RA34<0:3>
3RA12<0:3>
4RA56<0:3>
4RA34<0:3>
4RA12<0:3>
5RA56<0:3>
5RA34<0:3>
5RA12<0:3>
6RA56<0:3>
6RA34<0:3>
6RA12<0:3>
7RA56<0:3>
0RA56R<0:3>
0RA34R<0:3>
0RA12R<0:3>
1RA56R<0:3>
1RA34R<0:3>
1RA12R<0:3>
2RA56R<0:3>
2RA34R<0:3>
2RA12R<0:3>
3RA56R<0:3>
3RA34R<0:3>
3RA12R<0:3>
4RA56R<0:3>
4RA34R<0:3>
4RA12R<0:3>
5RA56R<0:3>
5RA34R<0:3>
5RA12R<0:3>
6RA56R<0:3>
6RA34R<0:3>
6RA12R<0:3>
7RA56R<0:3>

FIG. 3E


MAPVccA
44
MapAVC2R
MapDVC2R
48
27
48
32 Meg Array
REDr<0:16>
ACTr<0:16>
LEQar<0:16>
LEQbr<0:16>
LISOa*r<0:16>
LISOb*r<0:16>
LNSAr<0:16>
LPSA*r<0:16>
RNL*r<0:16>
GPH16*r<0:3>
GPH15*r<0:3>
GPH14*r<0:3>
GPH13*r<0:3>
GPH12*r<0:3>
GPH11*r<0:3>
GPH10*r<0:3>
GPH9*r<0:3>
GPH8*r<0:3>
GPH7*r<0:3>
GPH6*r<0:3>
GPH5*r<0:3>
GPH4*r<0:3>
GPH3*r<0:3>
GPH2*r<0:3>
GPH1*r<0:3>
GPH0*r<0:3>
ENDVC2R
SEL32MR*
MapVccA
VccA
48
SEL32M*<n>
7RA34<0:3>
7RA12<0:3>
8RA56<0:3>
8RA34<0:3>
8RA12<0:3>
CSEL<0:1055>
DLa<0:7>
DLa*<0:7>
DLb<0:7>
DLb*<0:7>
DLc<0:7>
DLc*<0:7>
DLd<0:7>
DLd*<0:7>
7RA34R<0:3>
7RA12R<0:3>
8RA56R<0:3>
8RA34R<0:3>
8RA12R<0:3>
CSELR<0:1055>
DLaR<0:7>
DLaR*<0:7>
DLbR<0:7>
DLbR*<0:7>
DLcR<0:7>
DLcR*<0:7>
DLdR<0:7>
DLdR*<0:7>
MapAVC2R
MapDVC2R
MapVCCPR
MapVCCA

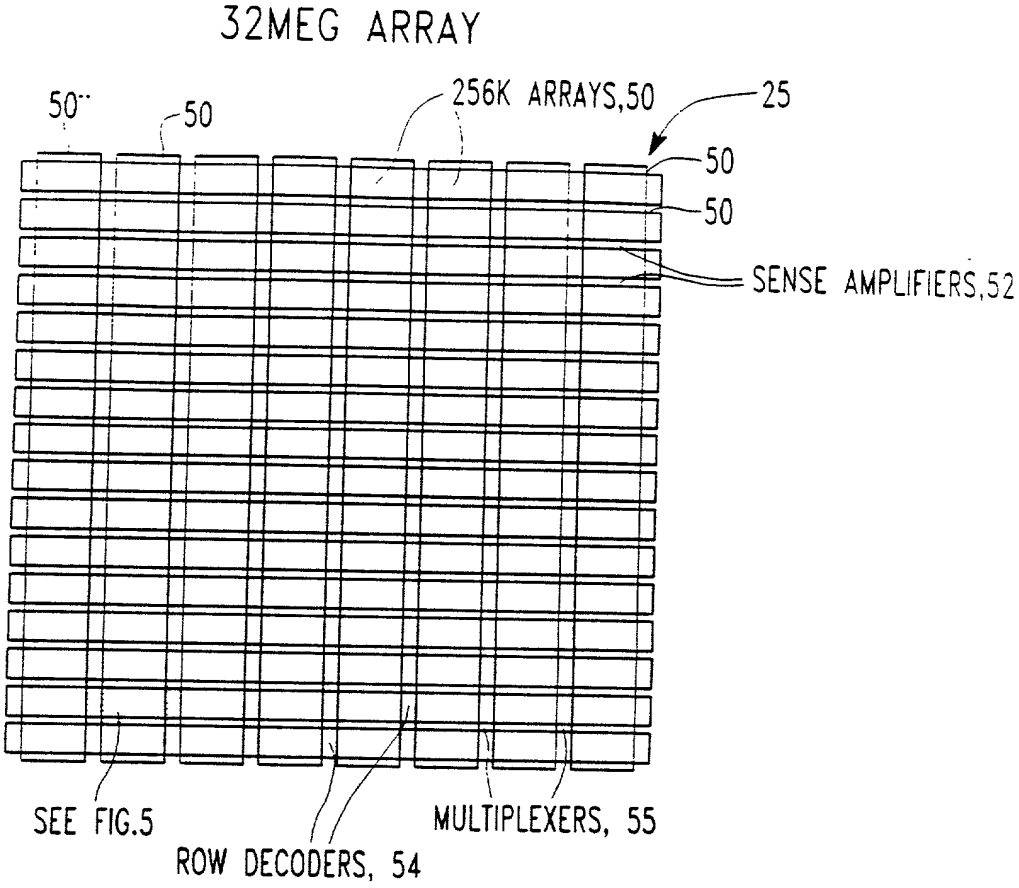

32MEG ARRAY
50
50
256K ARRAYS,50
25
50
50
SENSE AMPLIFIERS,52
SEE FIG.5
ROW DECODERS, 54
MULTIPLEXERS, 55

FIG. 4

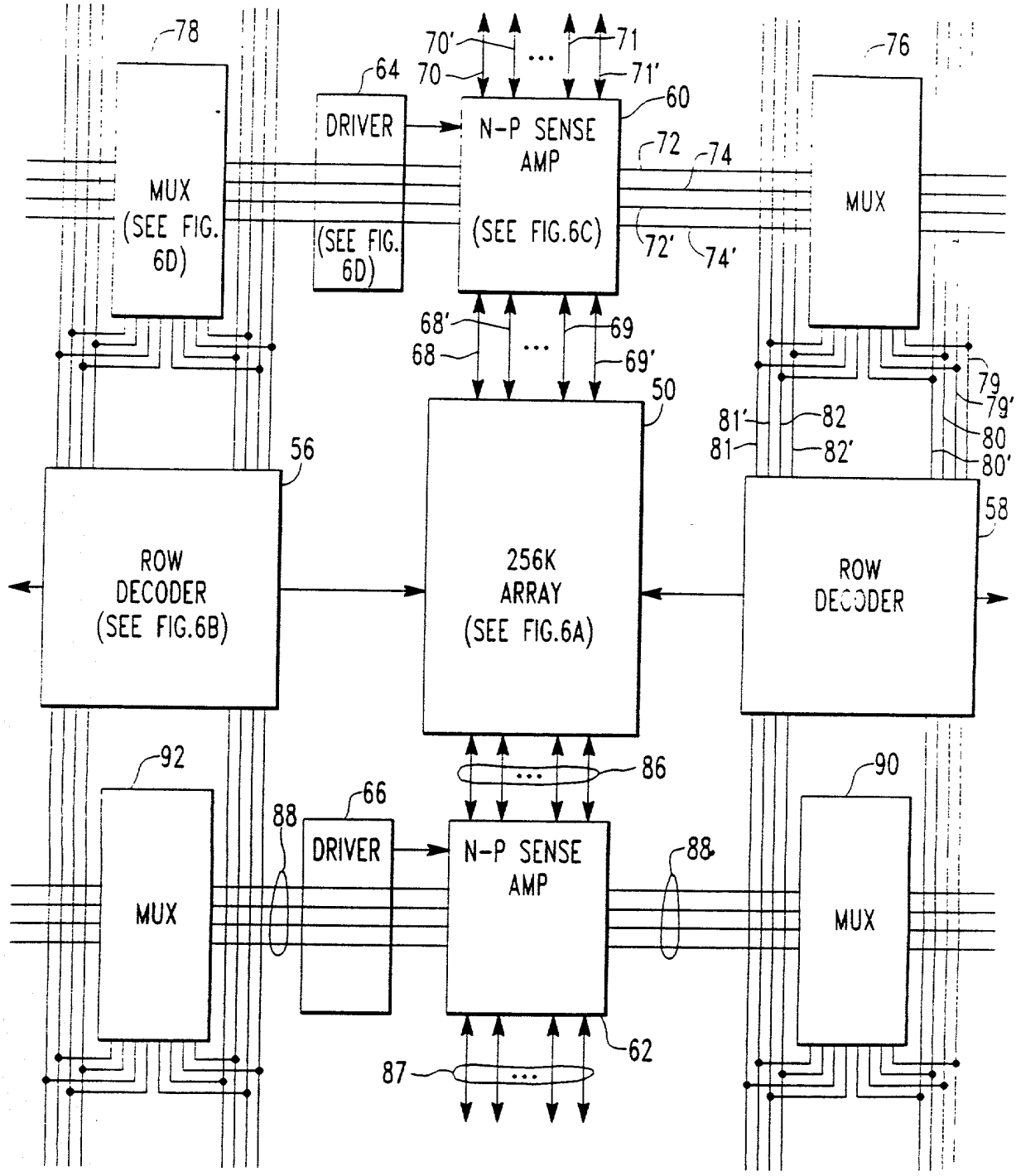

78
MUX
(SEE FIG.
6D)
64
DRIVER
(SEE FIG.
6D)
70'
70
71
71'
N-P SENSE
AMP
(SEE FIG.6C)
60
72
74
72'
74'
76
MUX
68'
68
69
69'
50
79
79'
80
80'
81'
81
82
82'
56
ROW
DECODER
(SEE FIG.6B)
256K
ARRAY
(SEE FIG.6A)
58
ROW
DECODER
92
MUX
88
66
DRIVER
N-P SENSE
AMP
86
88
90
MUX
87
62

FIG. 5

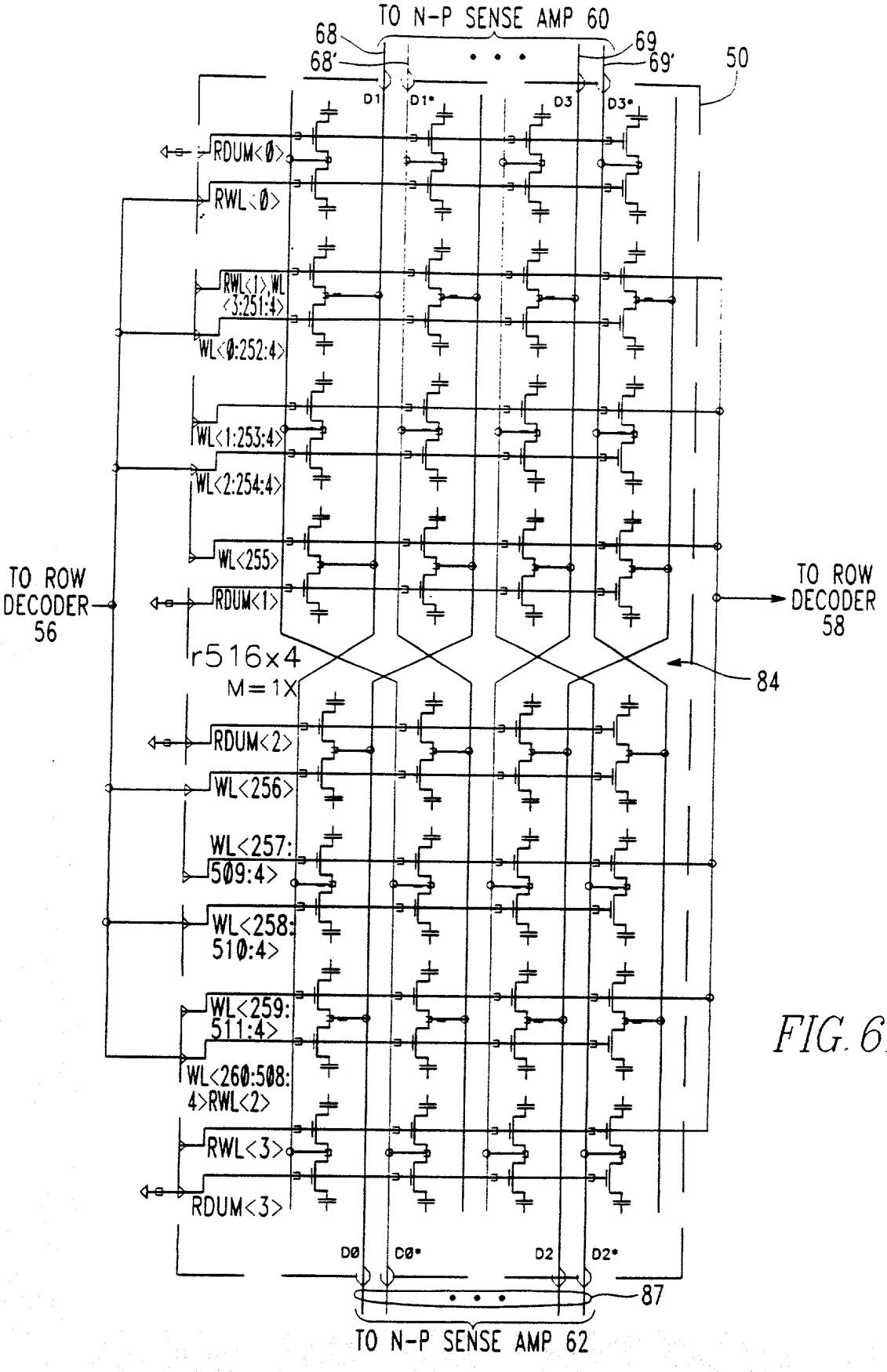

TO N-P SENSE AMP 60
68
68'
69
69'
50
D1
D1*
D3
D3*
RDUM<0>
RWL<0>
RWL<1>,WL<3:251:4>
WL<0:252:4>
WL<1:253:4>
WL<2:254:4>
WL<255>
RDUM<1>
TO ROW DECODER 56
TO ROW DECODER 58
r516x4
M=1X
84
RDUM<2>
WL<256>
WL<257:509:4>
WL<258:510:4>
WL<259:511:4>
WL<260:508:4>RWL<2>
RWL<3>
RDUM<3>
D0
D0*
D2
D2*
87
TO N-P SENSE AMP 62

FIG. 6A

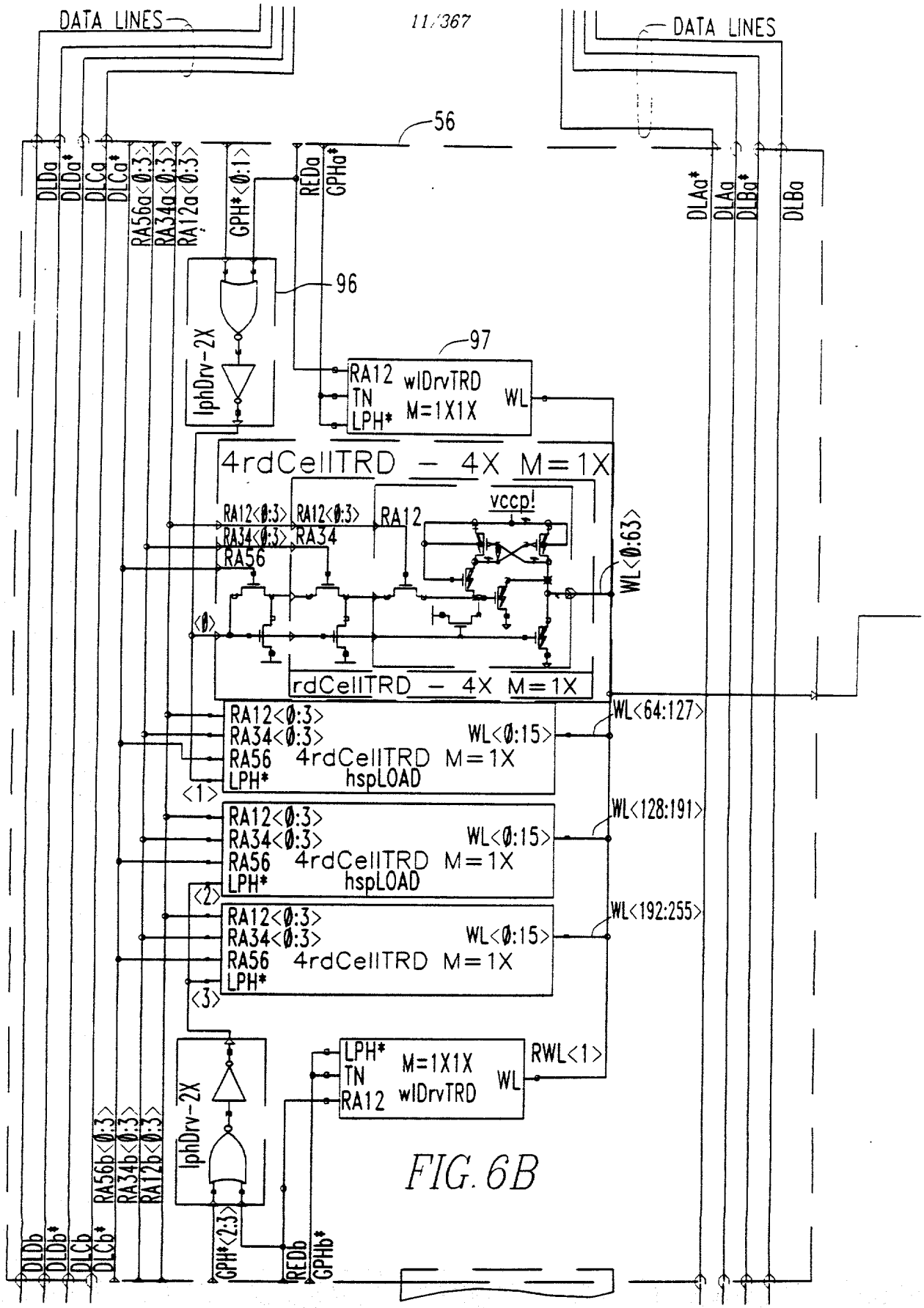

DATA LINES
DATA LINES
56
DLDa
DLDa*
DLCa
DLCa*
RA56a<Ø:3>
RA34a<Ø:3>
RA12a<Ø:3>
GPH*<Ø:1>
REDa
GPHa*
DLAa*
DLAa
DLBa*
DLBa
96
IphDrv-2X
97
RA12
TN
LPH*
wlDrvTRD
M=1X1X
WL
4rdCellTRD – 4X M=1X
RA12<Ø:3>
RA34<Ø:3>
RA56
RA12<Ø:3>
RA34
RA12
vccp!
WL<Ø:63>
<Ø>
rdCellTRD – 4X M=1X
WL<64:127>
RA12<Ø:3>
RA34<Ø:3>
RA56
LPH*
WL<Ø:15>
4rdCellTRD M=1X
hspLOAD
<1>
WL<128:191>
<2>
WL<192:255>
<3>
LPH*
TN
RA12
M=1X1X
wlDrvTRD
WL
RWL<1>
IphDrv-2X
RA56b<Ø:3>
RA34b<Ø:3>
RA12b<Ø:3>
GPH*<2:3>
REDb
GPHb*
DLDb
DLDb*
DLCb
DLCb*

FIG. 6B

Connections of odd/even columns to IOa and IOb alternates with odd/even column select lines:

CAØ1*	D1(even)	D2(odd)
Ø	IOa	IOb
1	IOb	IOa
2	IOa	IOb
3	IOb	IOa

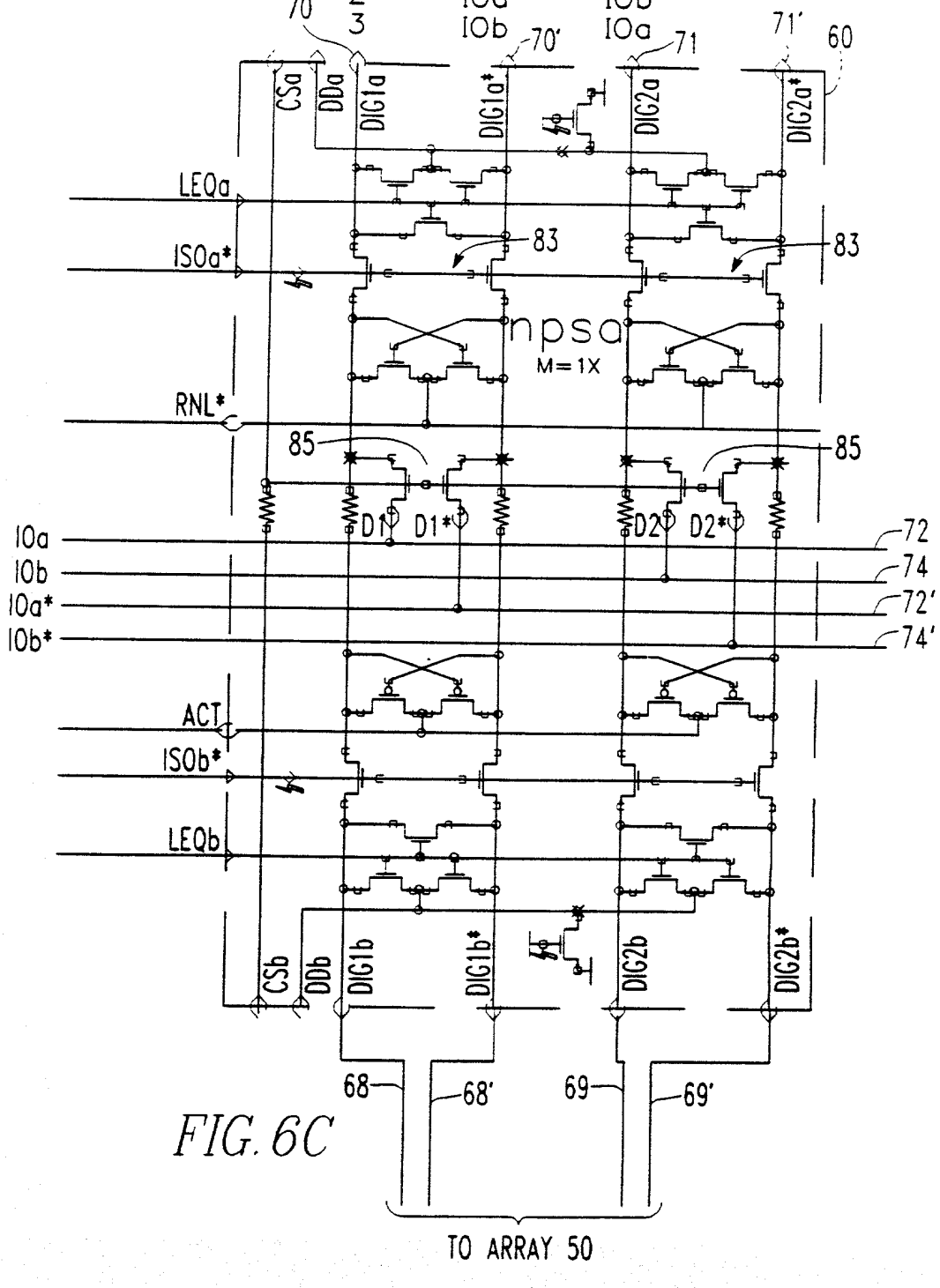


FIG. 6C

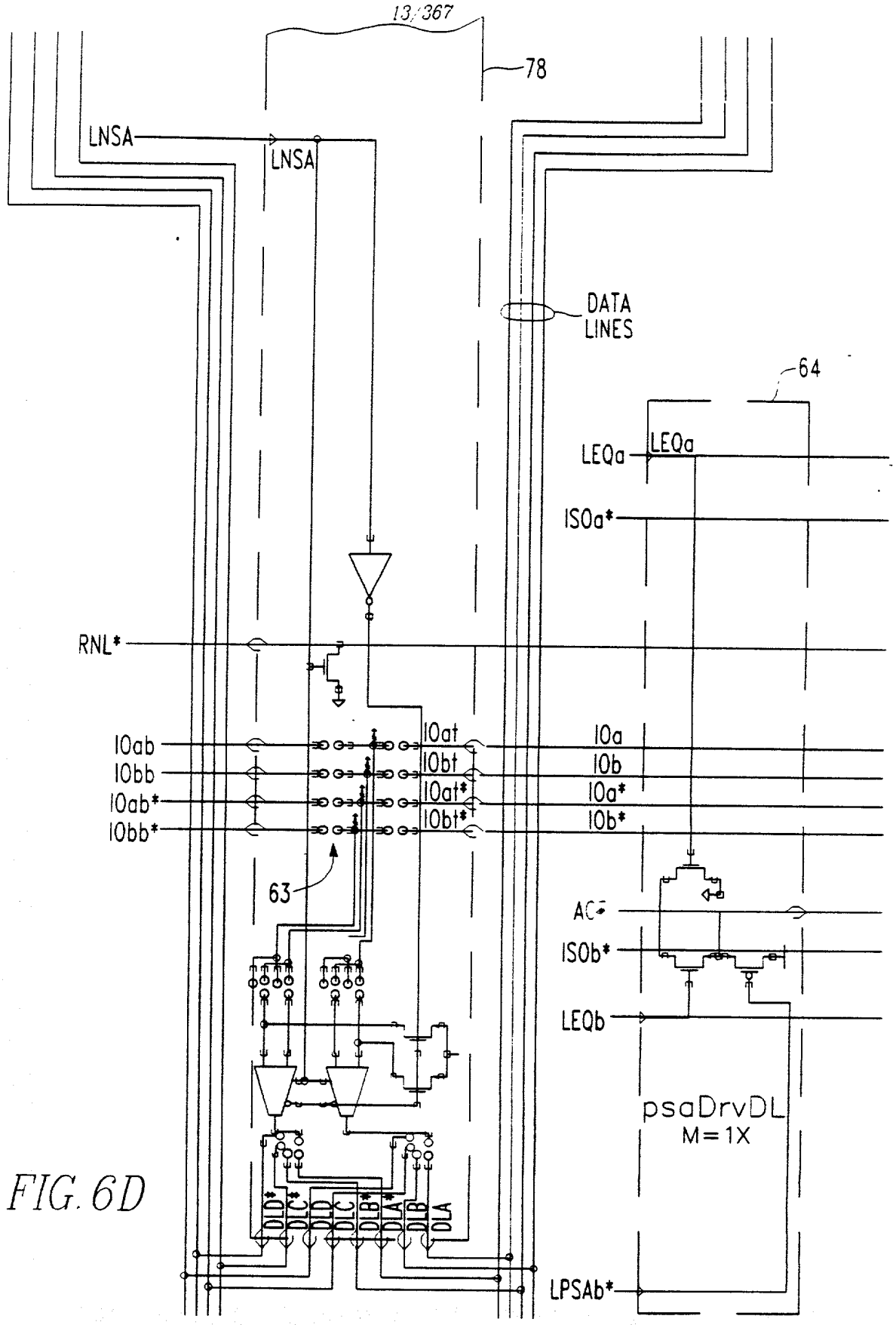

13/367
78
LNSA
LNSA
DATA
LINES
64
LEQa
LEQa
ISOa*
RNL*
IOab
IObb
IOab*
IObb*
IOat
IObt
IOat*
IObt*
IOa
IOb
IOa*
IOb*
63
ISOb*
LEQb
psaDrvDL
M=1X
DLD*
DLC*
DLD
DLD
DLC
DLB*
DLA*
DLB
DLA
LPSAb*

FIG. 6D

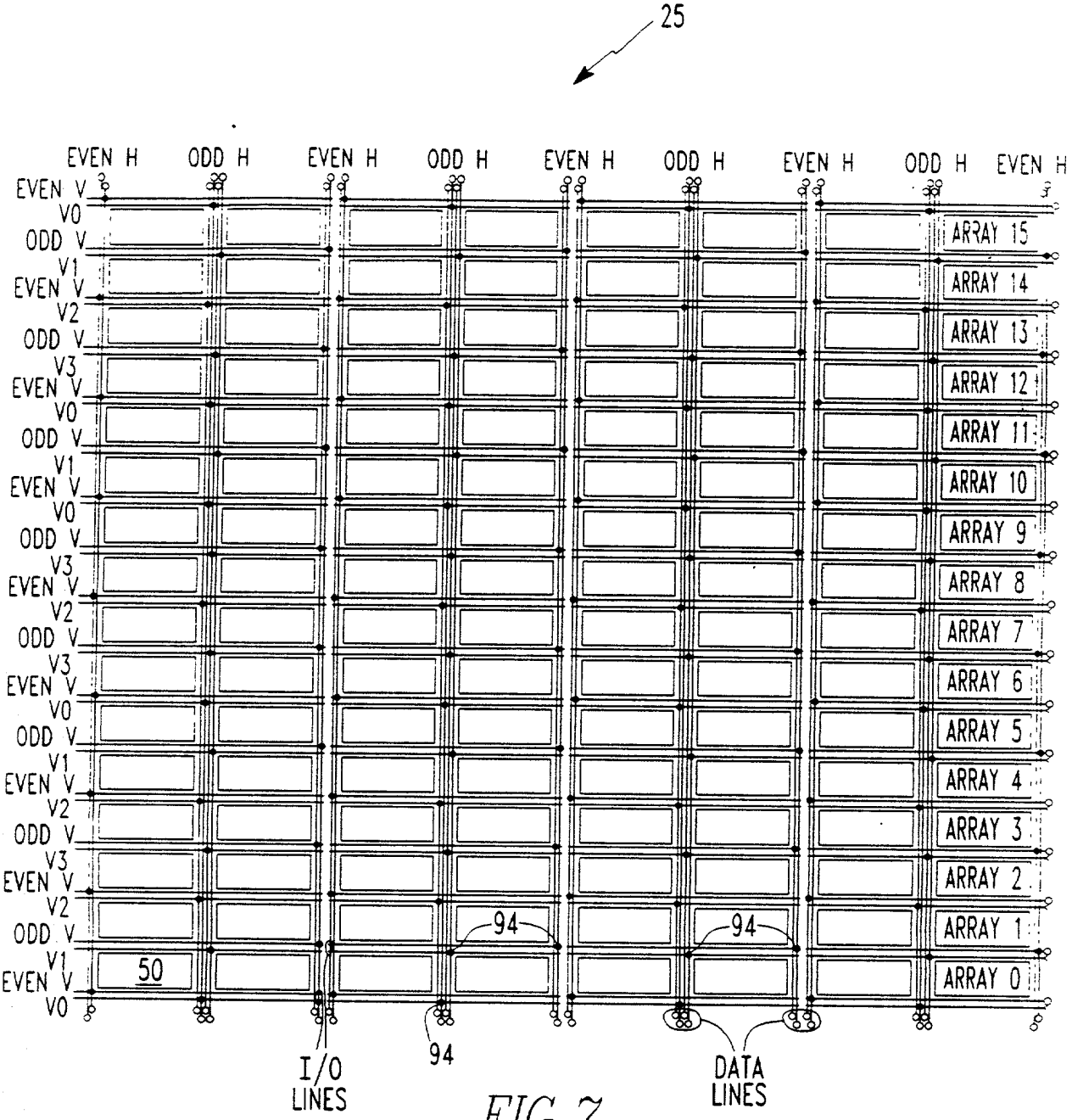

25
EVEN H
ODD H
EVEN H
ODD H
EVEN H
ODD H
EVEN H
ODD H
EVEN H
EVEN V
V0
ODD V
V1
EVEN V
V2
ODD V
V3
EVEN V
V0
ODD V
V1
EVEN V
V0
ODD V
V3
EVEN V
V2
ODD V
V3
EVEN V
V0
ODD V
V1
EVEN V
V2
ODD V
V3
EVEN V
V2
ODD V
V1
EVEN V
V0
ARRAY 15
ARRAY 14
ARRAY 13
ARRAY 12
ARRAY 11
ARRAY 10
ARRAY 9
ARRAY 8
ARRAY 7
ARRAY 6
ARRAY 5
ARRAY 4
ARRAY 3
ARRAY 2
ARRAY 1
ARRAY 0
50
94
94
94
I/O LINES
DATA LINES

FIG. 7

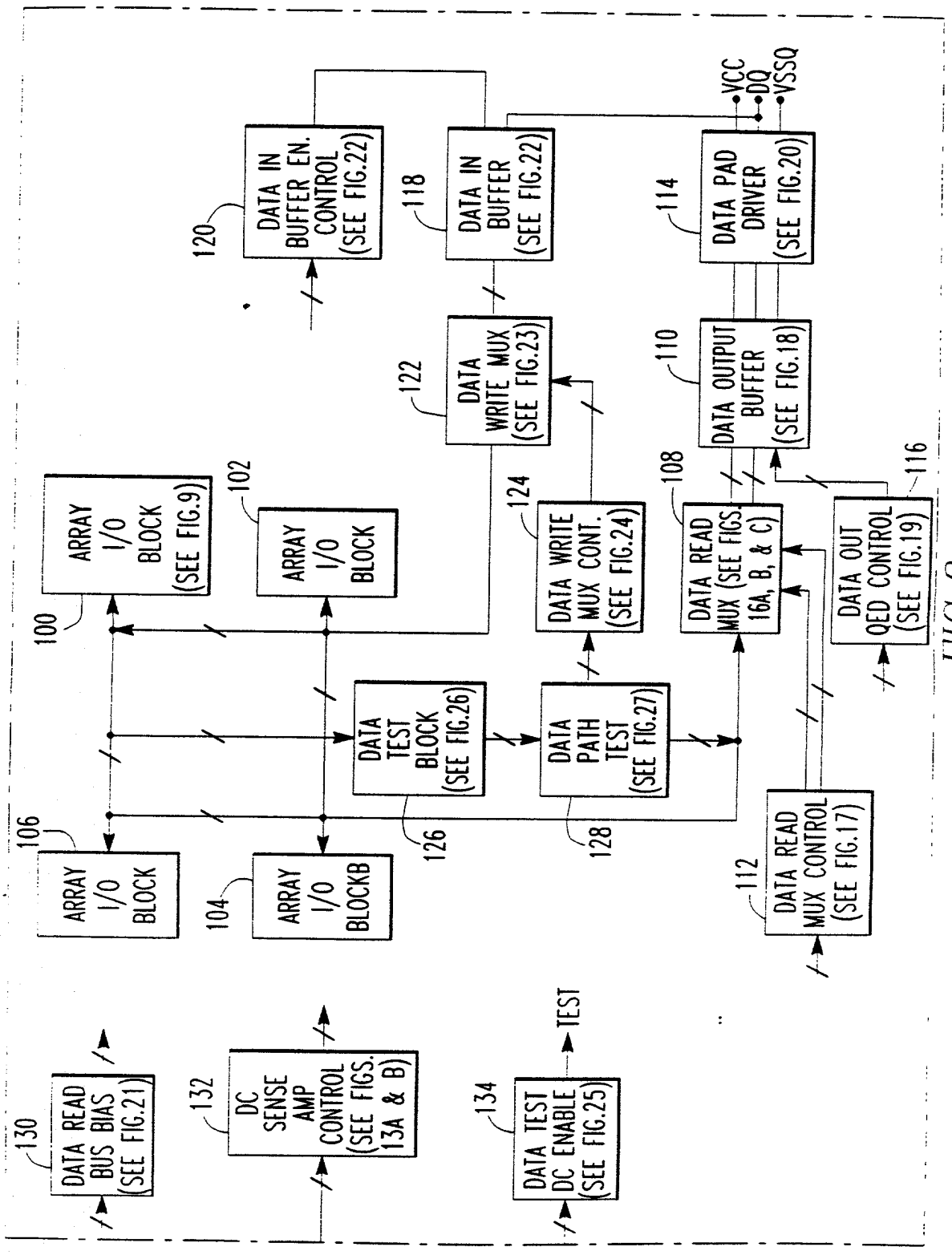

ARRAY I/O BLOCK (SEE FIG.9)
100
ARRAY I/O BLOCK
102
ARRAY I/O BLOCK
106
ARRAY I/O BLOCKB
104
DATA IN BUFFER EN. CONTROL (SEE FIG.22)
120
DATA IN BUFFER (SEE FIG.22)
118
DATA WRITE MUX (SEE FIG.23)
122
DATA WRITE MUX CONT. (SEE FIG.24)
124
DATA TEST BLOCK (SEE FIG.26)
126
DATA PATH TEST (SEE FIG.27)
128
DATA READ MUX (SEE FIGS. 16A, B, & C)
108
DATA READ MUX CONTROL (SEE FIG.17)
112
DATA OUT QED CONTROL (SEE FIG.19)
116
DATA OUTPUT BUFFER (SEE FIG.18)
110
DATA PAD DRIVER (SEE FIG.20)
114
VCC
DQ
VSSQ
DATA READ BUS BIAS (SEE FIG.21)
130
DC SENSE AMP CONTROL (SEE FIGS. 13A & B)
132
DATA TEST DC ENABLE (SEE FIG.25)
134
TEST

FIG. 8

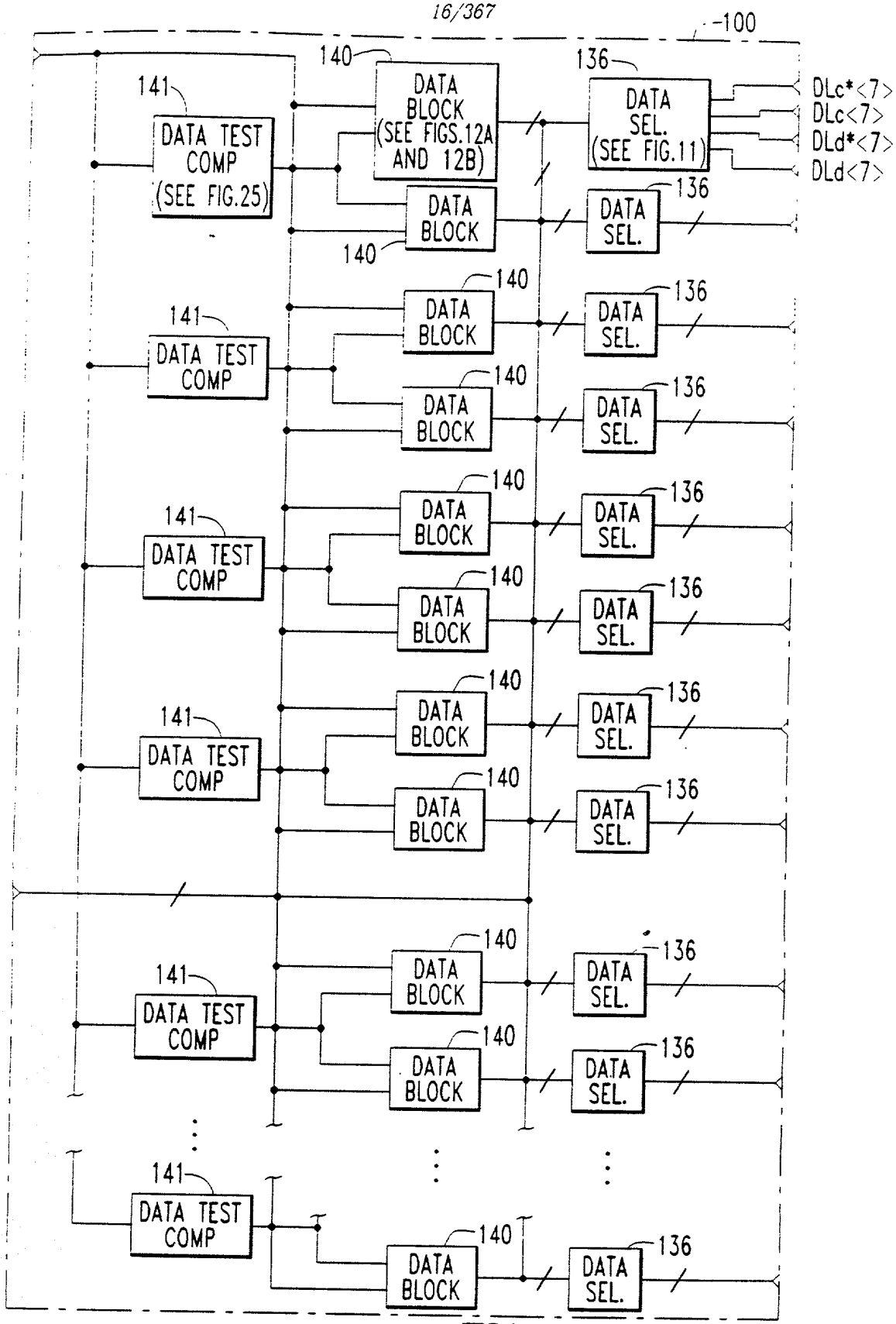

100
140
136
141
DATA TEST COMP (SEE FIG.25)
DATA BLOCK (SEE FIGS.12A AND 12B)
DATA SEL. (SEE FIG.11)
DLc*<7>
DLc<7>
DLd*<7>
DLd<7>
DATA BLOCK
DATA SEL.
DATA TEST COMP

FIG. 9

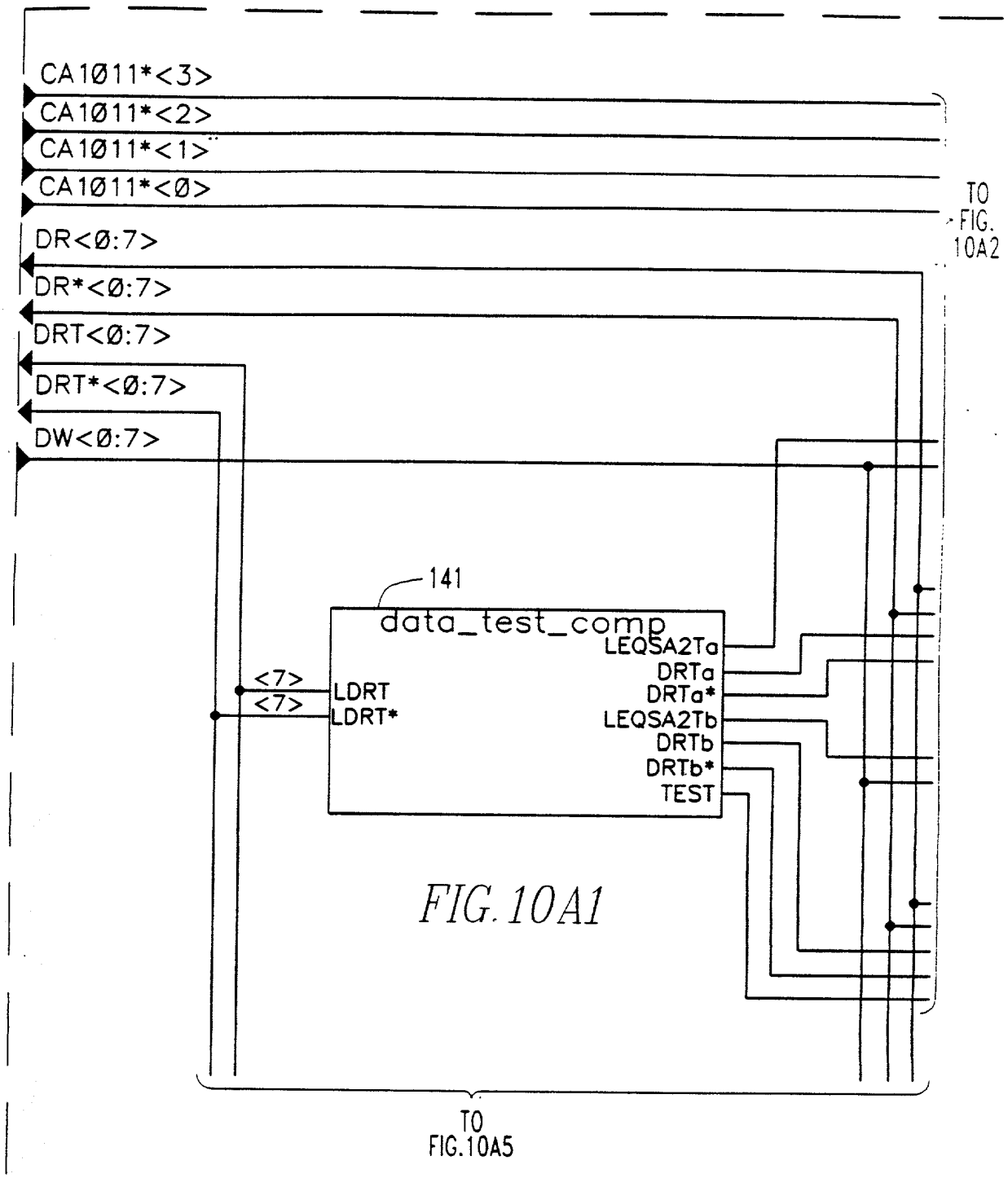

CA1Ø11*<3>
CA1Ø11*<2>
CA1Ø11*<1>
CA1Ø11*<Ø>
TO FIG. 10A2
DR<Ø:7>
DR*<Ø:7>
DRT<Ø:7>
DRT*<Ø:7>
DW<Ø:7>
141
data_test_comp
<7>
<7>
LDRT
LDRT*
LEQSA2Ta
DRTa
DRTa*
LEQSA2Tb
DRTb
DRTb*
TEST
TO FIG.10A5

FIG. 10A1

FIG. 10A2

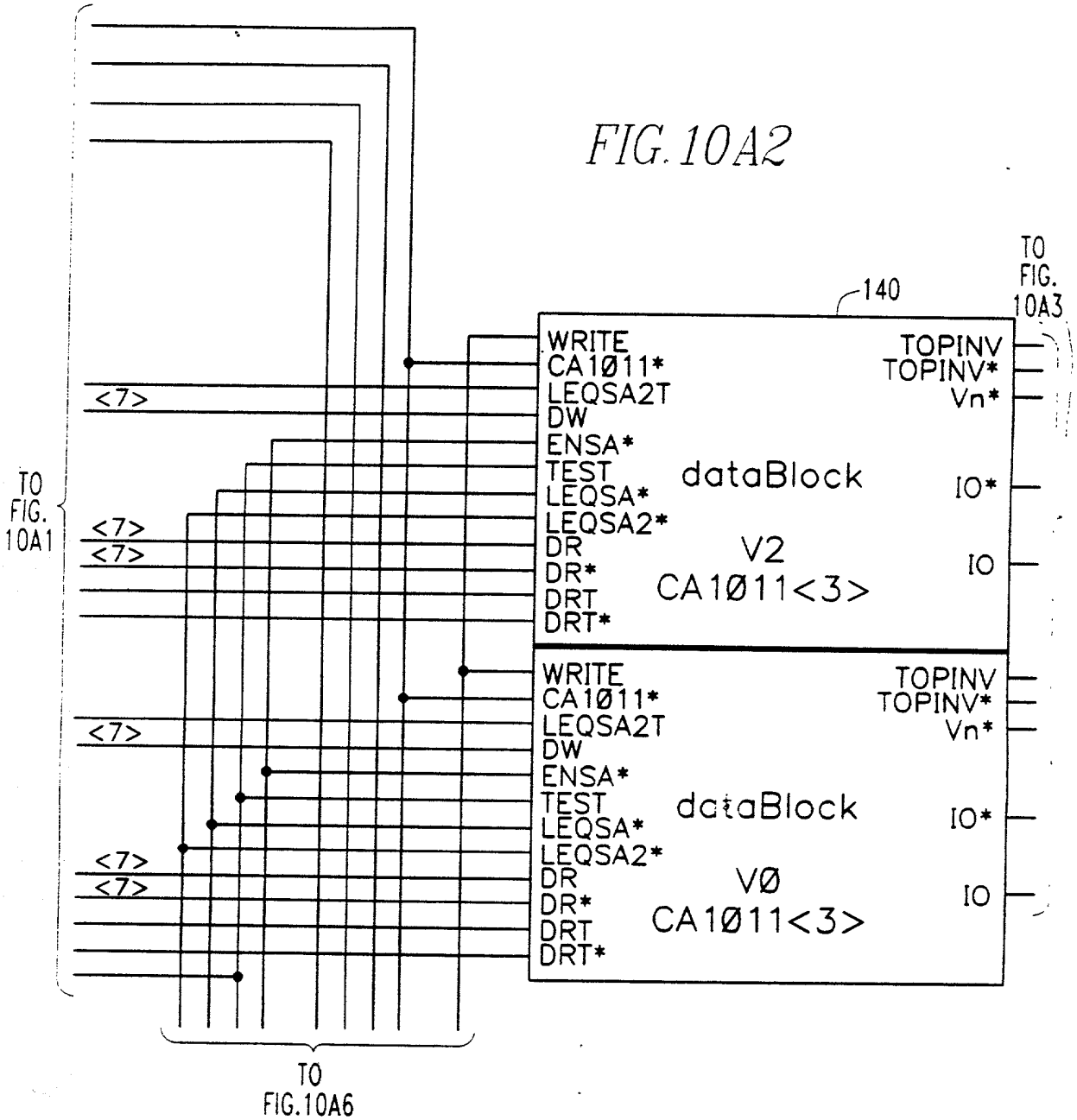
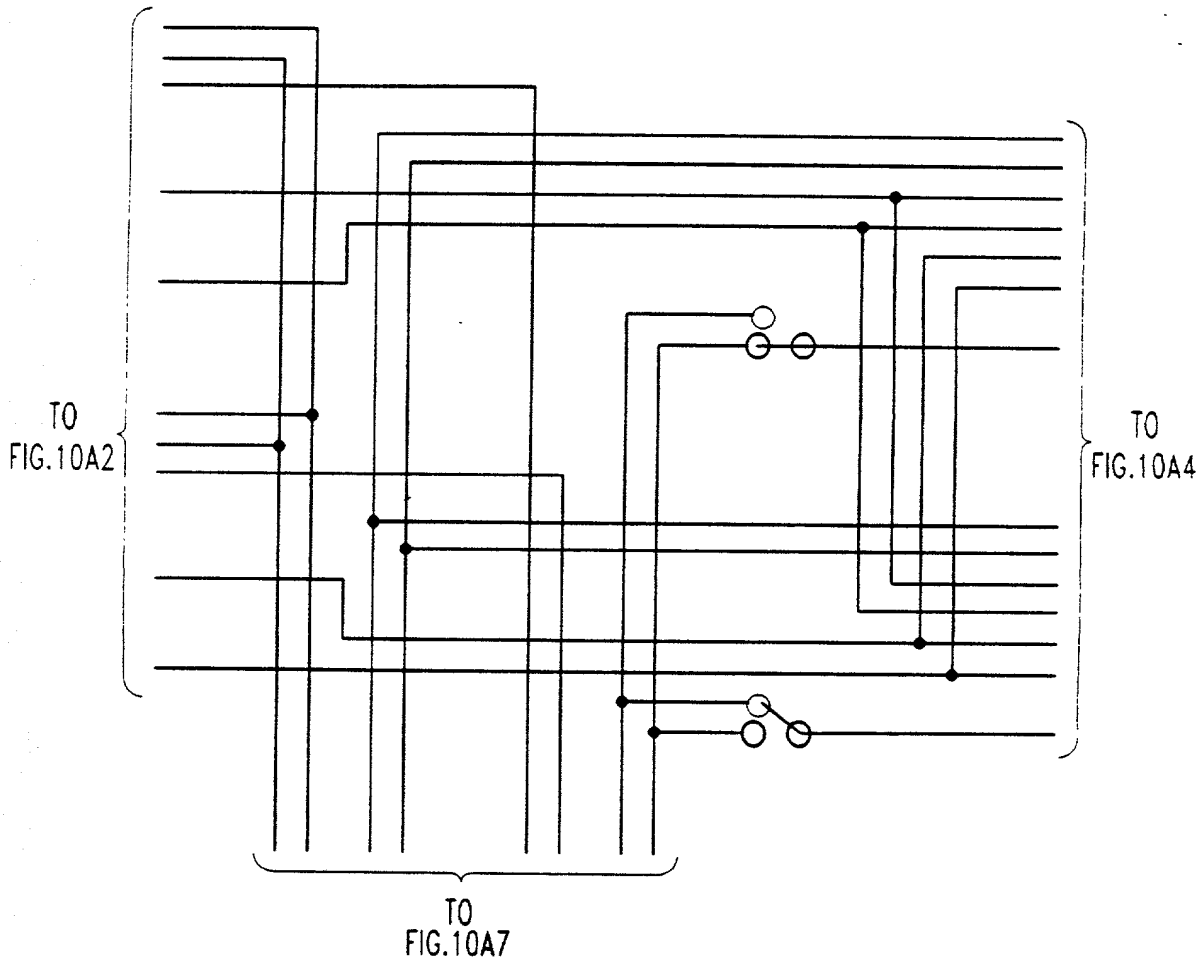
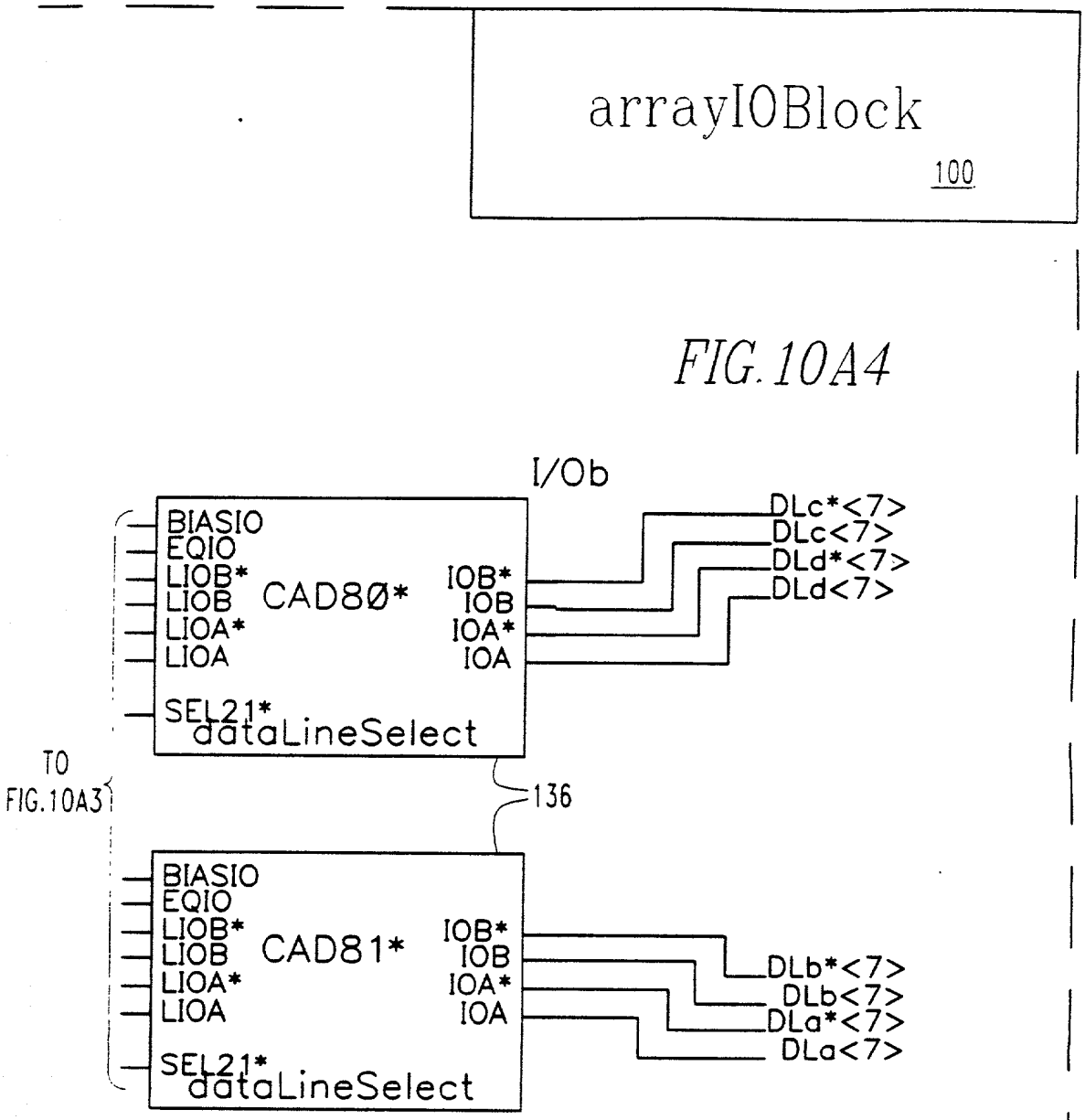

TO FIG. 10A1
<7>
<7>
<7>
<7>
<7>
140
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V2
CA1Ø11<3>
TOPINV
TOPINV*
Vn*
IO*
IO
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
VØ
CA1Ø11<3>
TOPINV
TOPINV*
Vn*
IO*
IO
TO FIG. 10A3
TO FIG.10A6

FIG. 10A3




arrayIOBlock
100
FIG. 10A4
I/Ob
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD8Ø*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLc*<7>
DLc<7>
DLd*<7>
DLd<7>
TO
FIG. 10A3
136
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD81*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLb*<7>
DLb<7>
DLa*<7>
DLa<7>

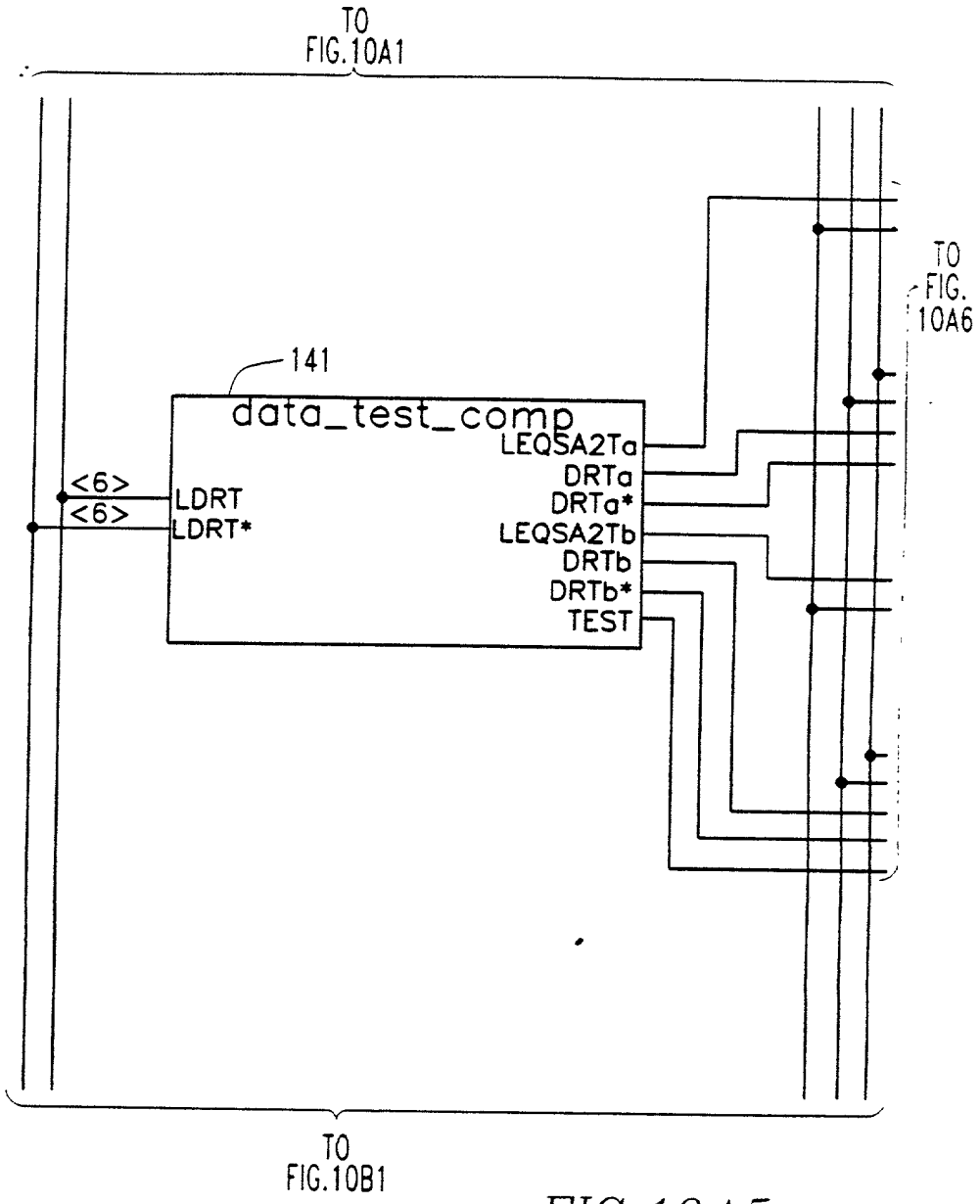

TO
FIG.10A1
TO
FIG.
10A6
141
data_test_comp
<6>
LDRT
<6>
LDRT*
LEQSA2Ta
DRTa
DRTa*
LEQSA2Tb
DRTb
DRTb*
TEST
TO
FIG.10B1

FIG. 10A5

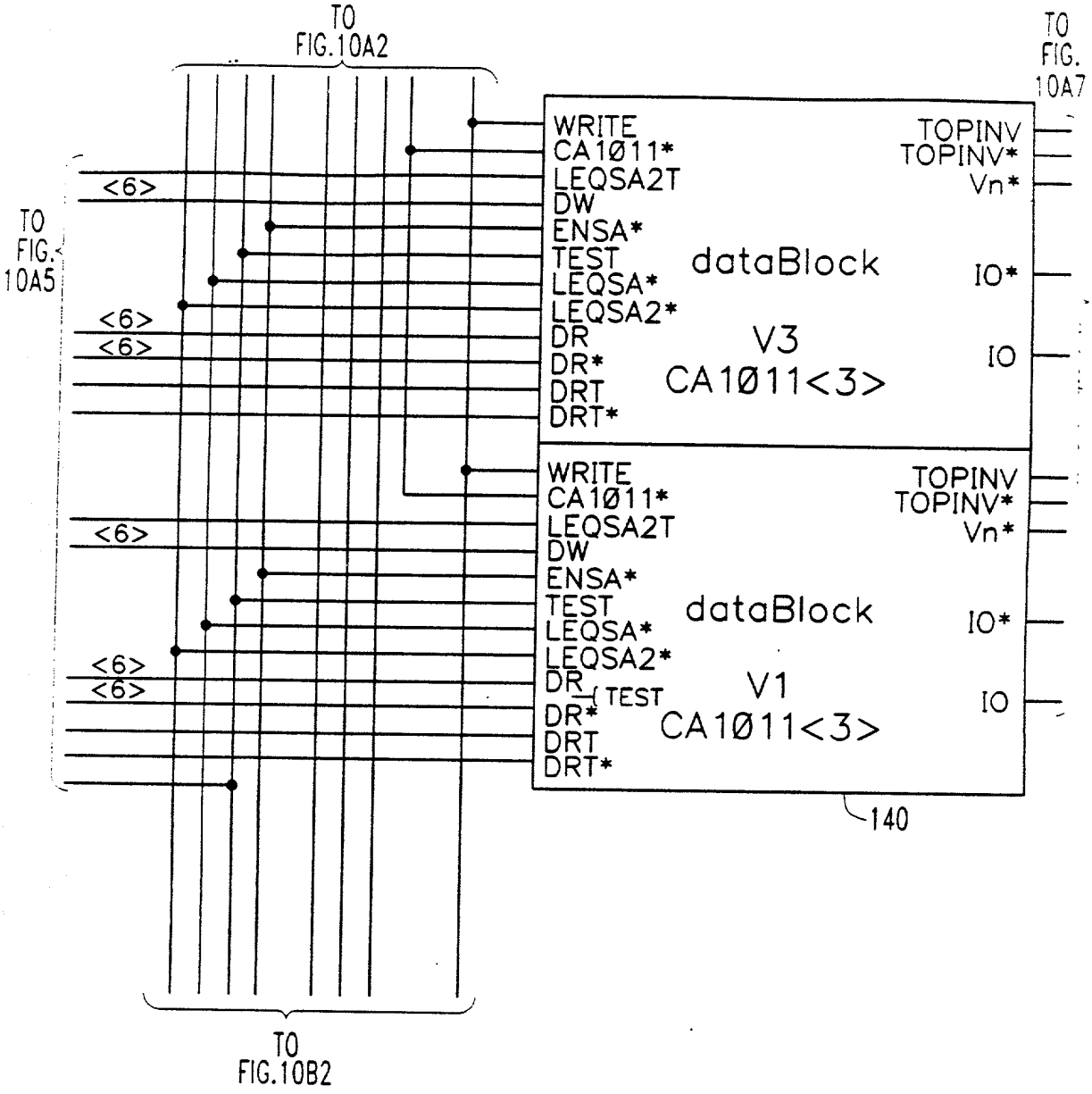

TO FIG.10A2
TO FIG. 10A7
TO FIG. 10A5
<6>
<6>
<6>
<6>
<6>
<6>
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V3
CA1Ø11<3>
TOPINV
TOPINV*
Vn*
IO*
IO
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
TEST
DR*
DRT
DRT*
dataBlock
V1
CA1Ø11<3>
TOPINV
TOPINV*
Vn*
IO*
IO
140
TO FIG.10B2

FIG. 10A6

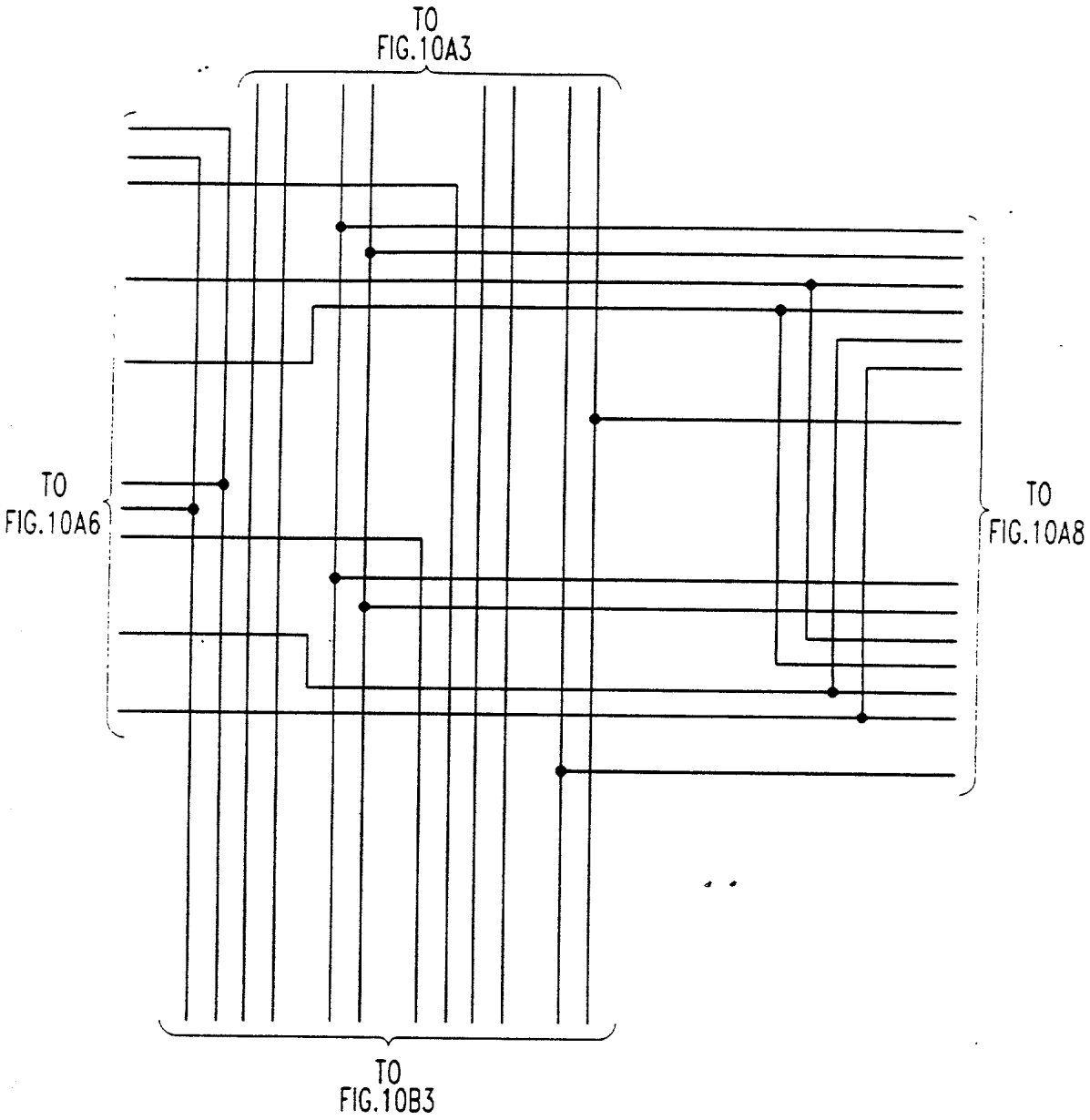


FIG. 10A7

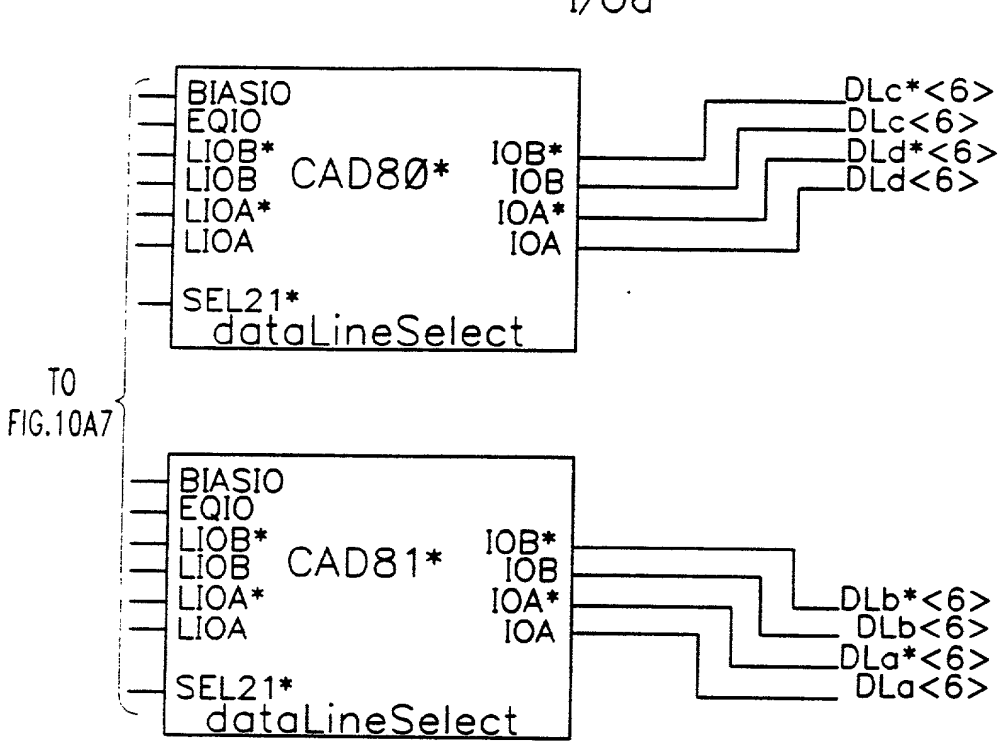

I/Oa
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD80*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLc*<6>
DLc<6>
DLd*<6>
DLd<6>
TO
FIG.10A7
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD81*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLb*<6>
DLb<6>
DLa*<6>
DLa<6>

FIG. 10A8

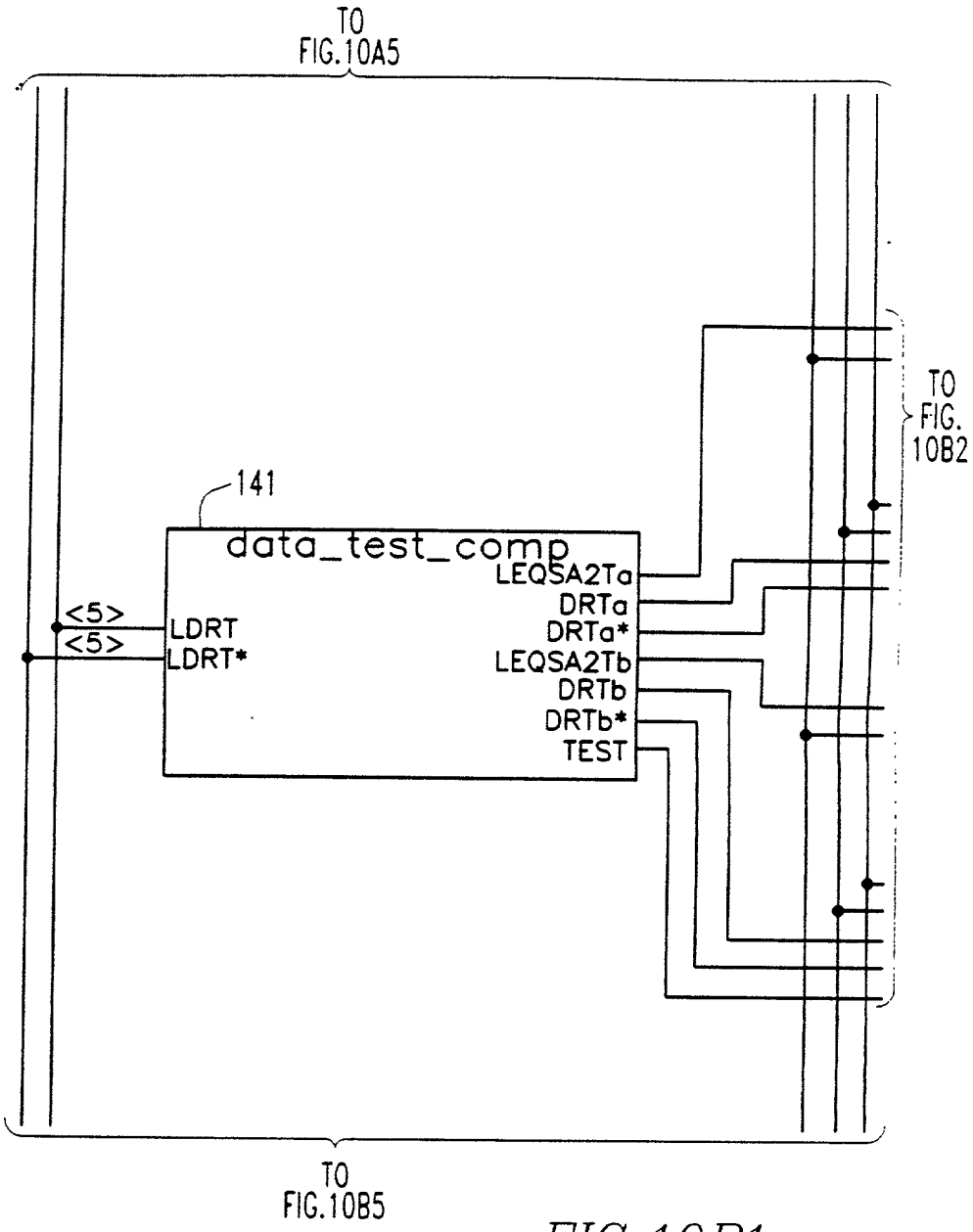

TO
FIG.10A5
TO
FIG.
10B2
141
data_test_comp
<5>
LDRT
<5>
LDRT*
LEQSA2Ta
DRTa
DRTa*
LEQSA2Tb
DRTb
DRTb*
TEST
TO
FIG.10B5

FIG. 10B1

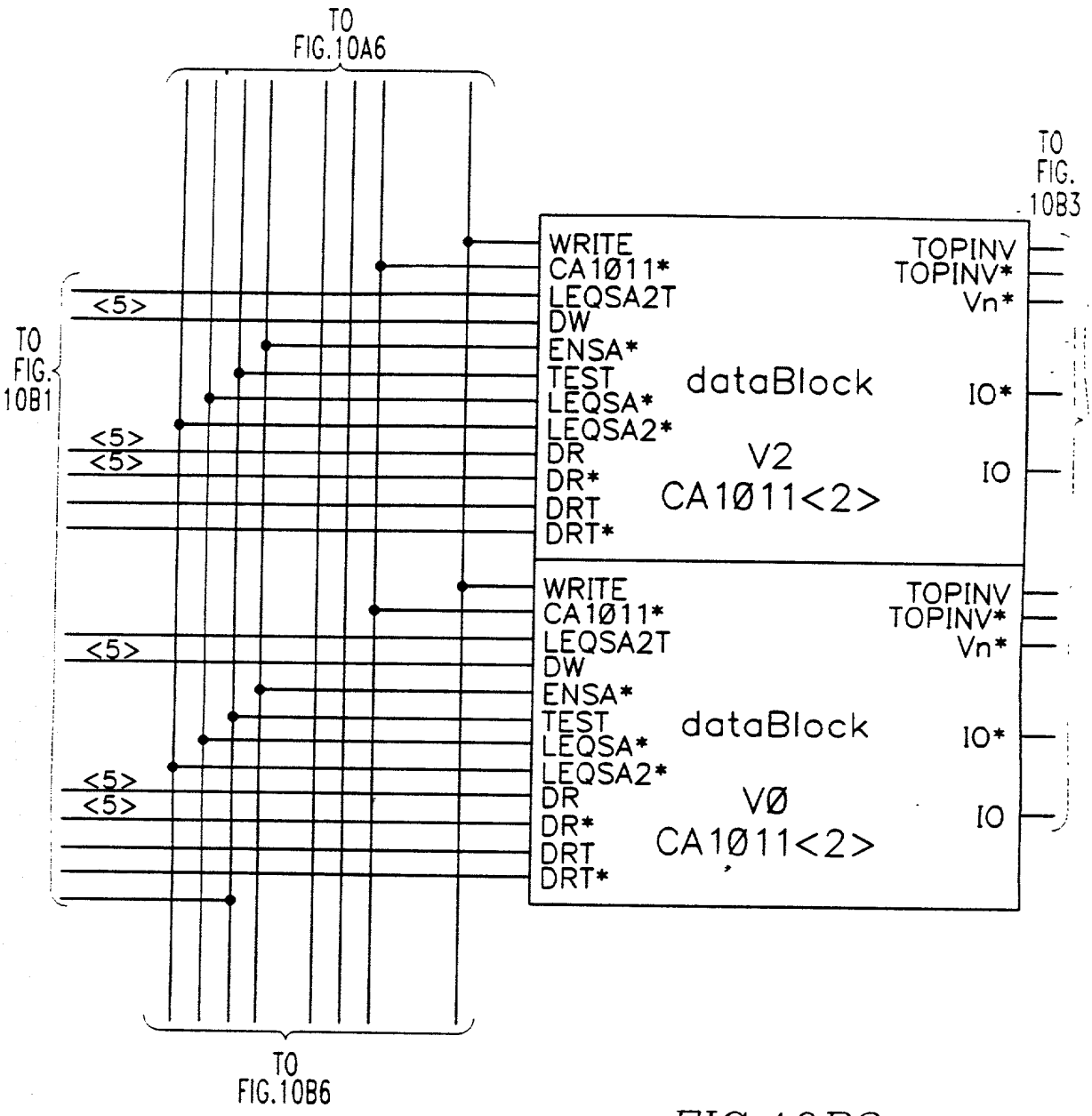

TO
FIG.10A6
TO
FIG.
10B3
TO
FIG.
10B1
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V2
CA1Ø11<2>
TOPINV
TOPINV*
Vn*
IO*
IO
<5>
<5>
<5>
<5>
<5>
<5>
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
VØ
CA1Ø11<2>
TOPINV
TOPINV*
Vn*
IO*
IO
TO
FIG.10B6

FIG. 10B2

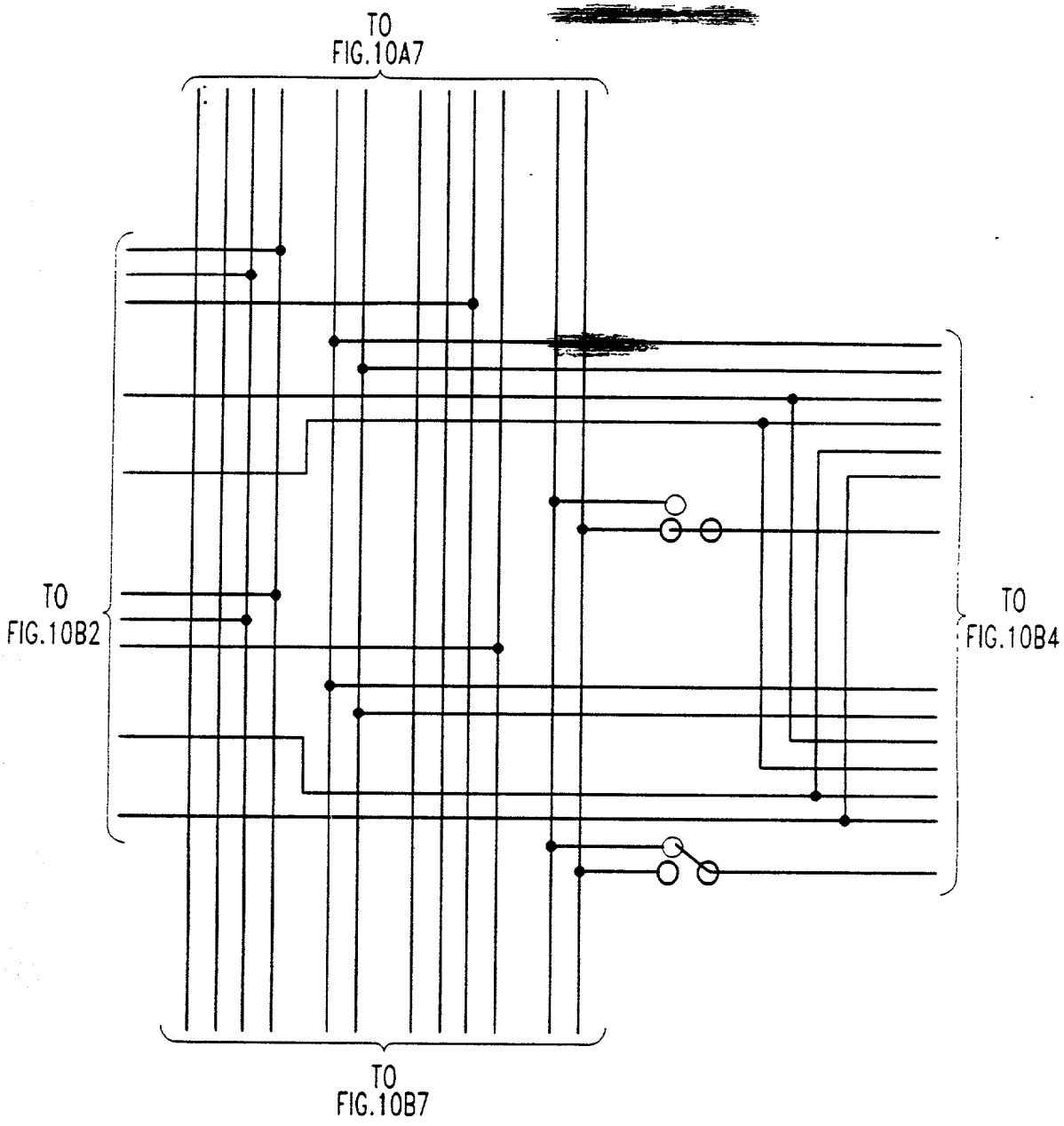


FIG.10B3

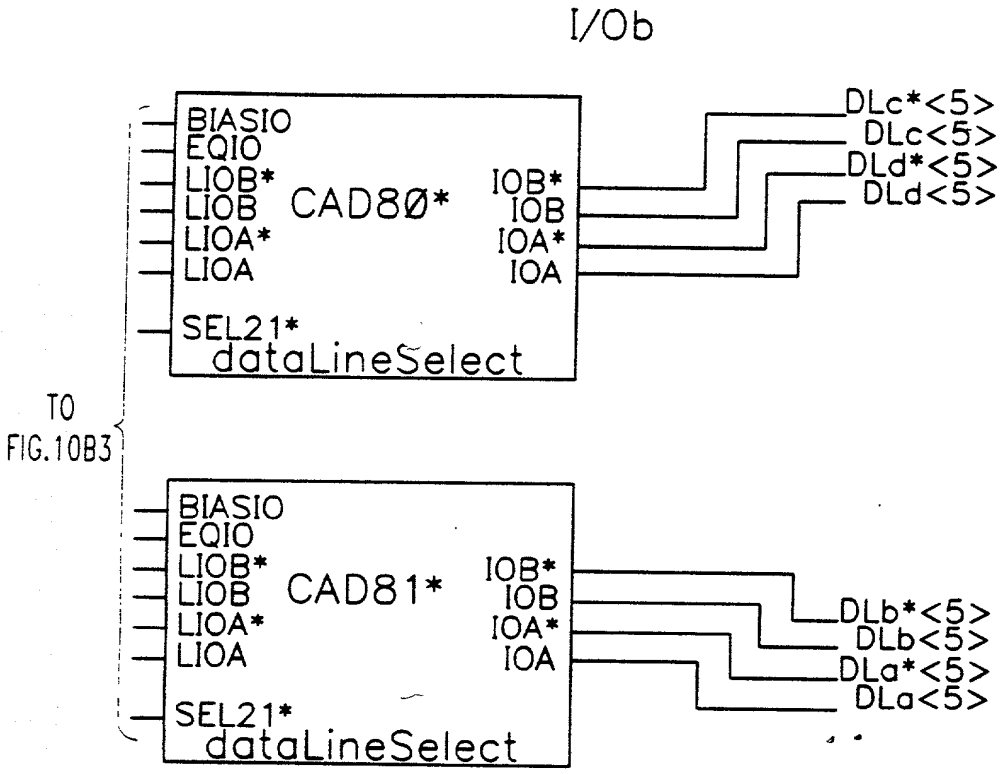

I/Ob
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD80*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLc*<5>
DLc<5>
DLd*<5>
DLd<5>
TO
FIG.10B3
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD81*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLb*<5>
DLb<5>
DLa*<5>
DLa<5>

FIG. 10B4

FIG. 10B5

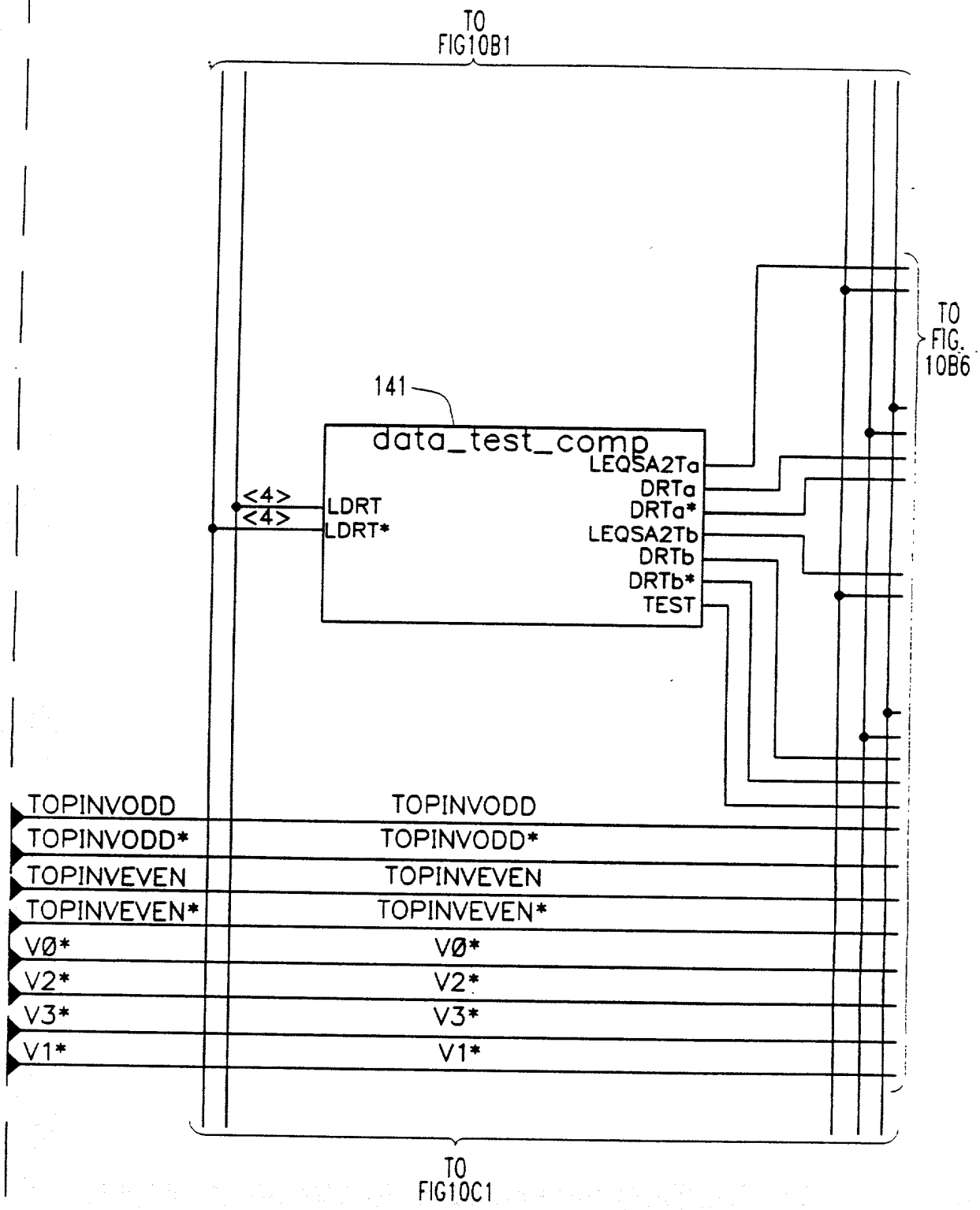

TO
FIG10B1
TO
FIG.
10B6
141
data_test_comp
<4>
<4>
LDRT
LDRT*
LEQSA2Ta
DRTa
DRTa*
LEQSA2Tb
DRTb
DRTb*
TEST
TOPINVODD
TOPINVODD*
TOPINVEVEN
TOPINVEVEN*
V0*
V2*
V3*
V1*
TOPINVODD
TOPINVODD*
TOPINVEVEN
TOPINVEVEN*
V0*
V2*
V3*
V1*
TO
FIG10C1

FIG. 10B6

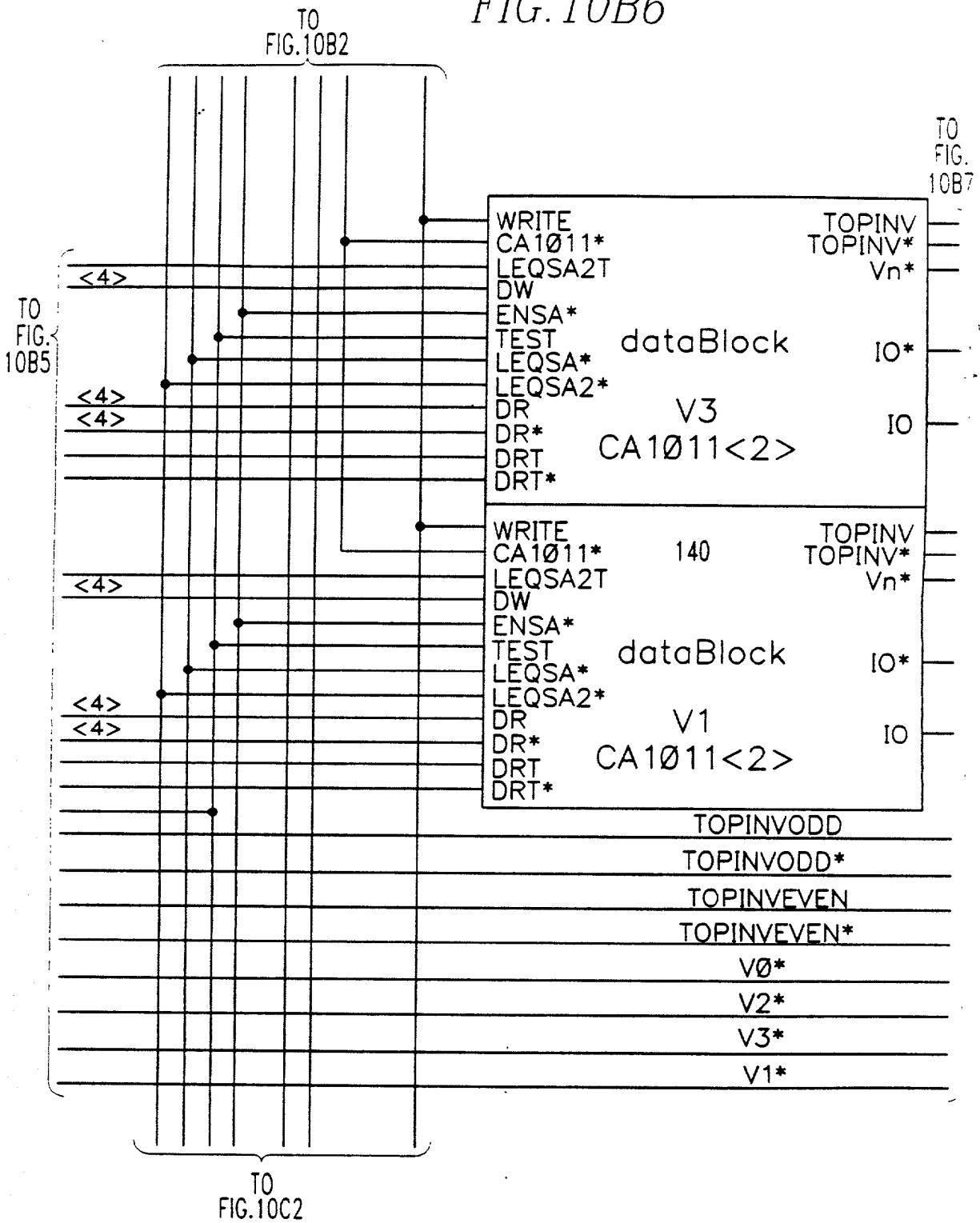

TO FIG.10B2
TO FIG. 10B7
TO FIG. 10B5
TO FIG.10C2
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V3
CA1Ø11<2>
TOPINV
TOPINV*
Vn*
IO*
IO
140
V1
<4>
TOPINVODD
TOPINVODD*
TOPINVEVEN
TOPINVEVEN*
VØ*
V2*
V3*
V1*

FIG. 10B7

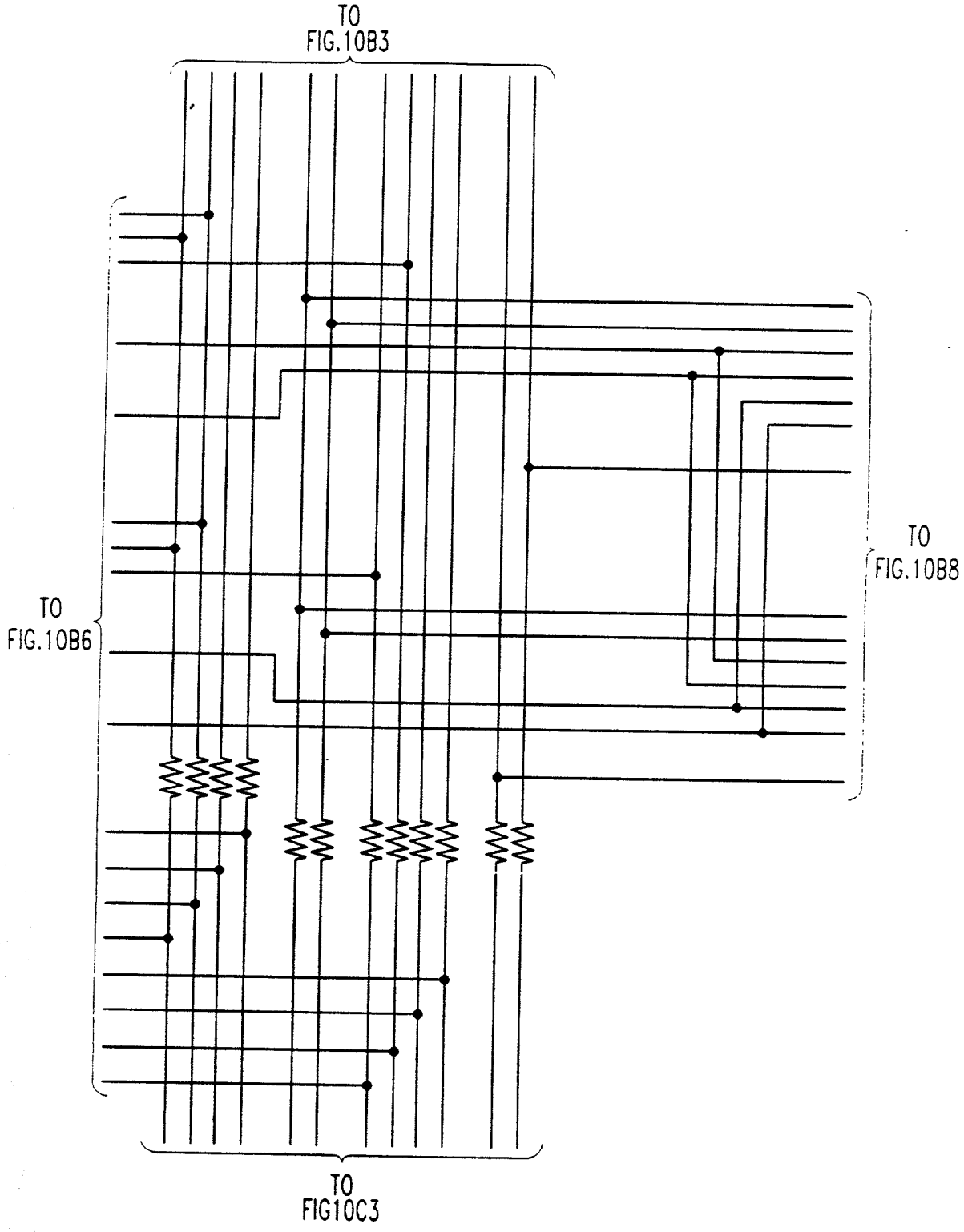
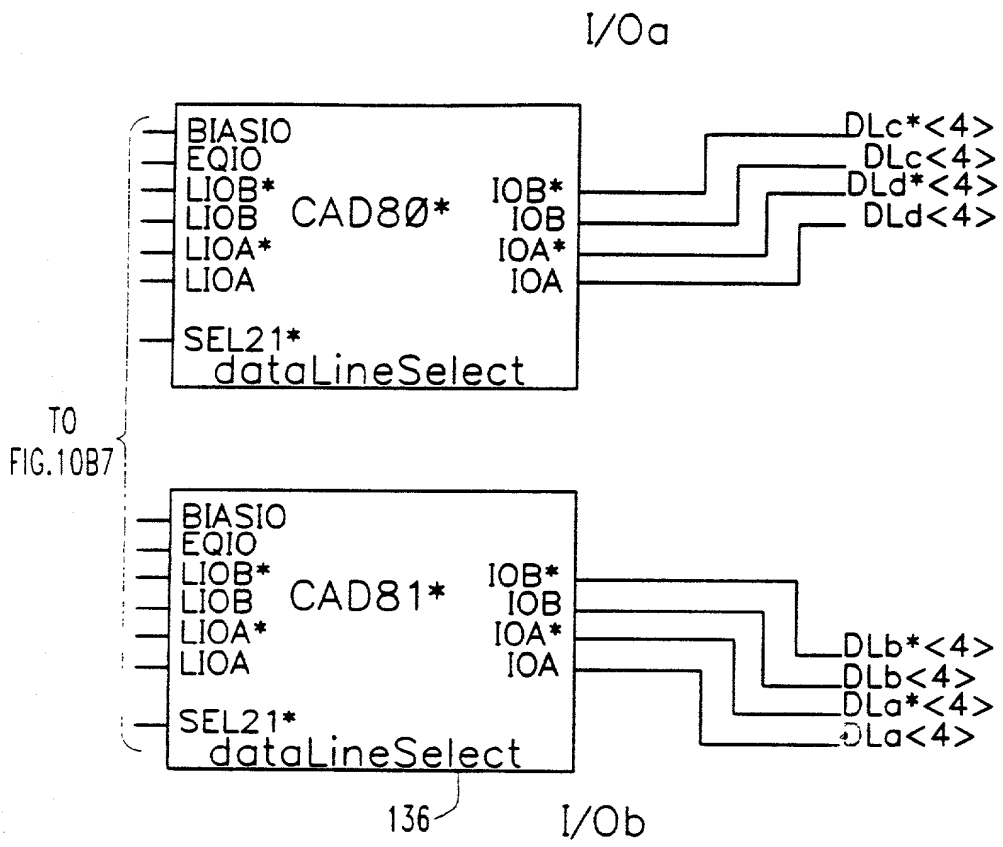


FIG. 10B8


I/Oa
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD80*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLc*<4>
DLc<4>
DLd*<4>
DLd<4>
TO
FIG.10B7
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD81*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLb*<4>
DLb<4>
DLa*<4>
DLa<4>
136
I/Ob

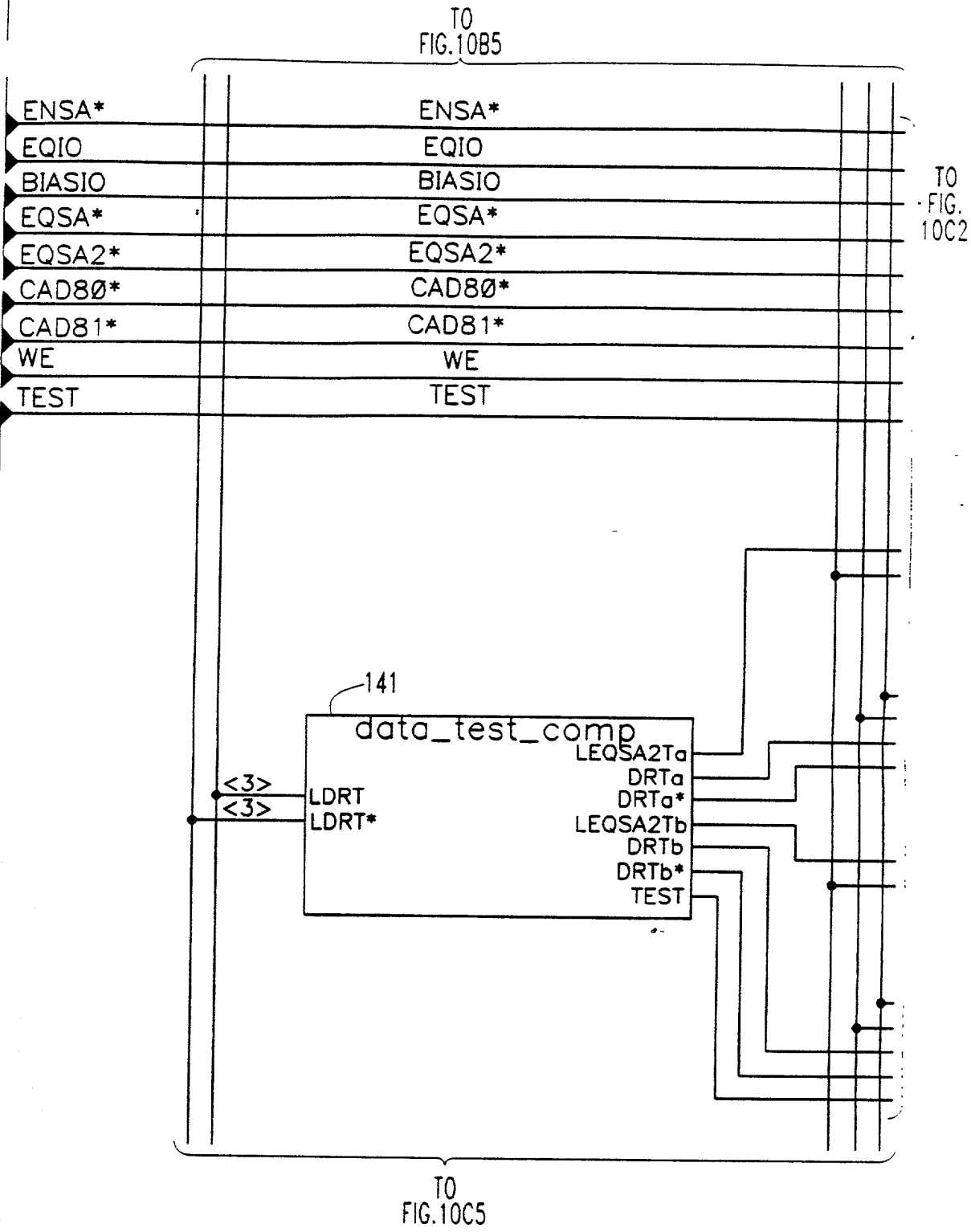

TO
FIG.10B5
ENSA*
EQIO
BIASIO
EQSA*
EQSA2*
CAD8Ø*
CAD81*
WE
TEST
TO
FIG.
10C2
141
data_test_comp
<3>
<3>
LDRT
LDRT*
LEQSA2Ta
DRTa
DRTa*
LEQSA2Tb
DRTb
DRTb*
TEST
TO
FIG.10C5

FIG. 10C1

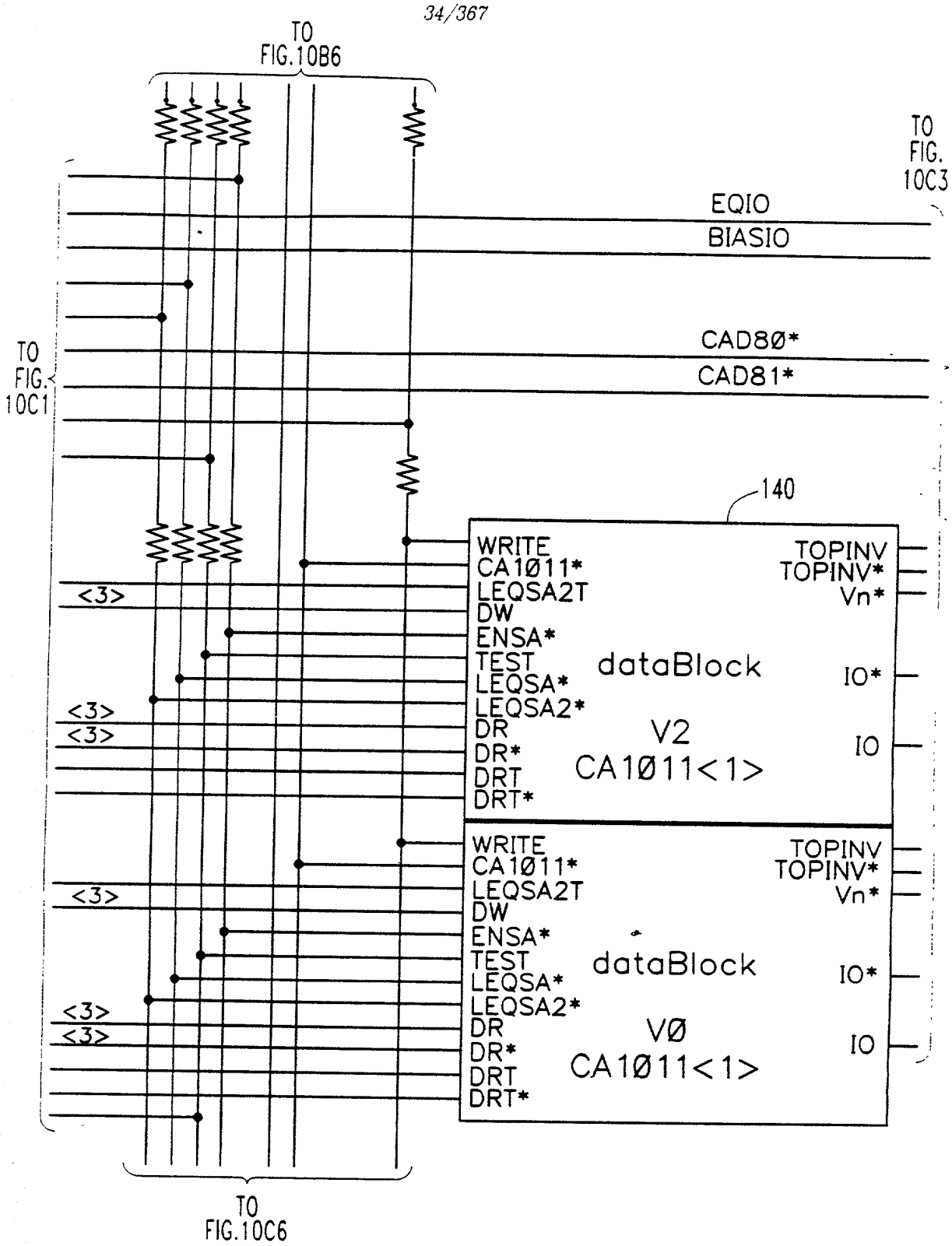

TO
FIG.10B6
TO
FIG.
10C3
EQIO
BIASIO
TO
FIG.
10C1
CAD8Ø*
CAD81*
140
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V2
CA1Ø11<1>
TOPINV
TOPINV*
Vn*
IO*
IO
<3>
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
VØ
CA1Ø11<1>
TOPINV
TOPINV*
Vn*
IO*
IO
TO
FIG.10C6

FIG. 10C2

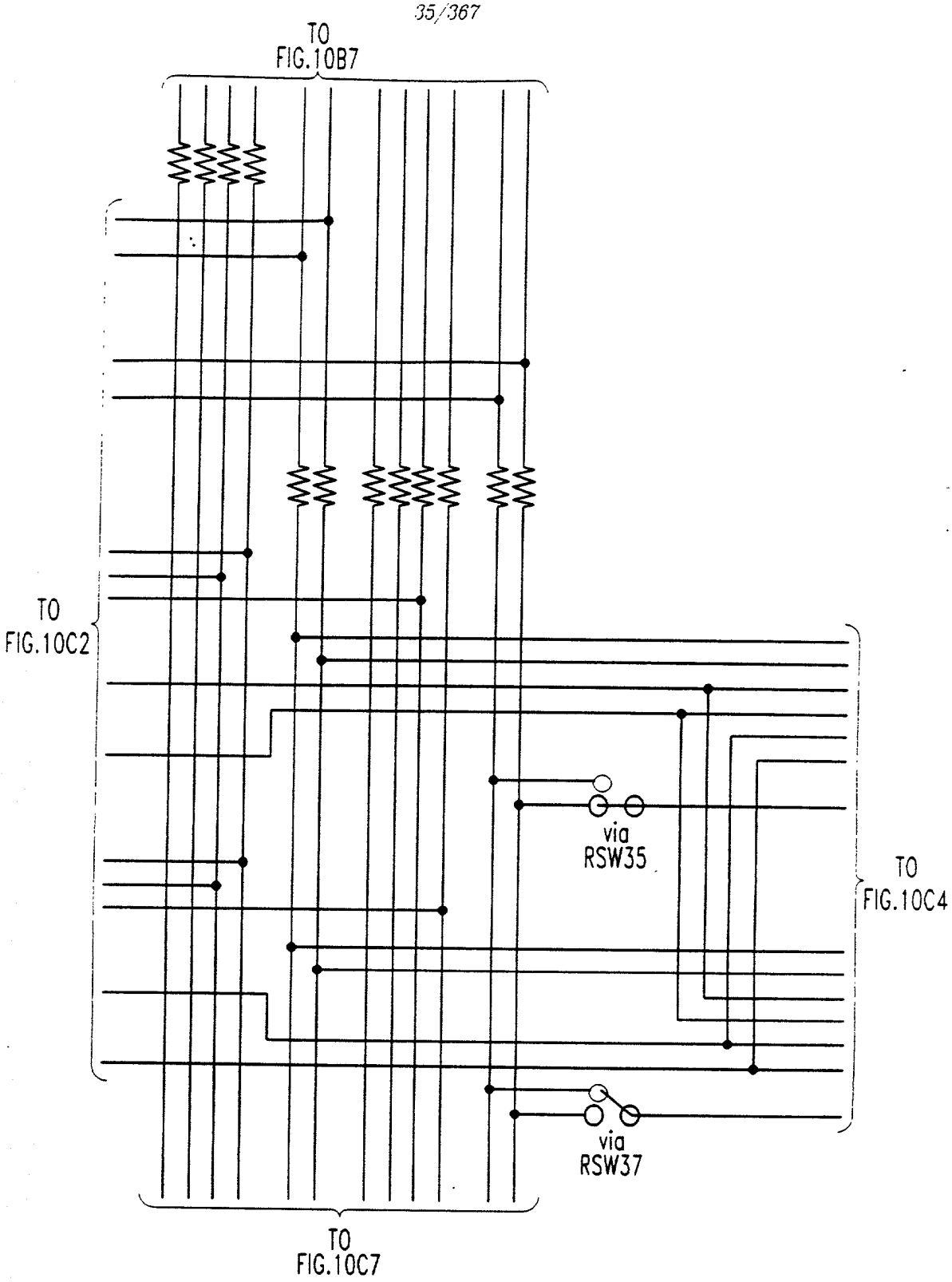
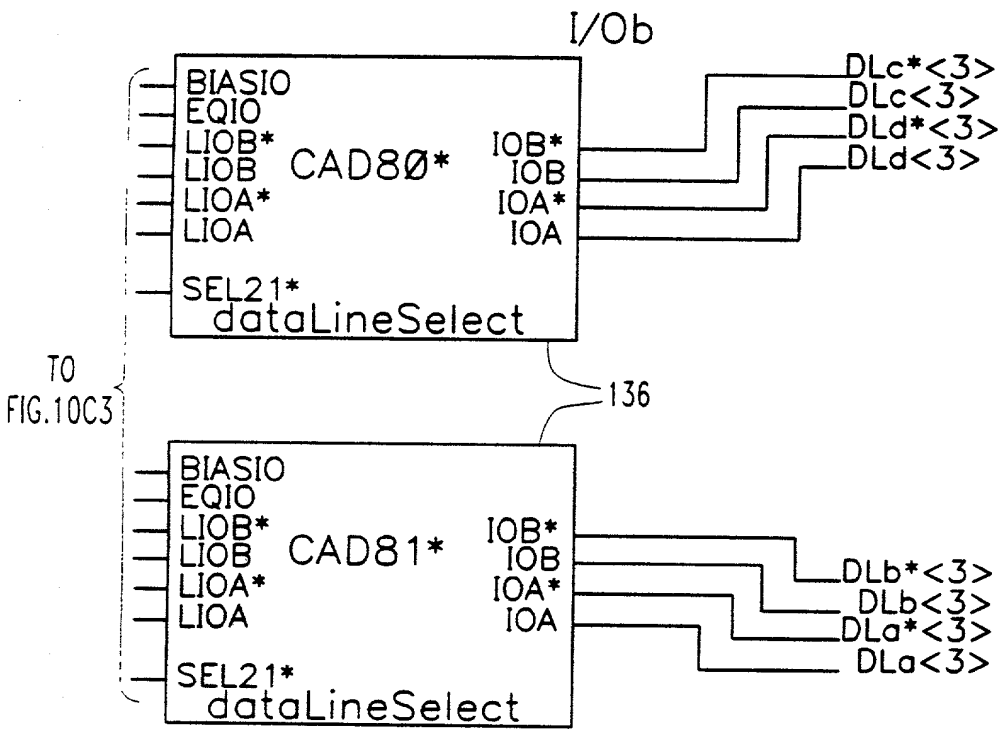

TO
FIG.10B7
TO
FIG.10C2
via
RSW35
TO
FIG.10C4
via
RSW37
TO
FIG.10C7

FIG. 10C3

FIG. 10C4


I/Ob
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD80*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLc*<3>
DLc<3>
DLd*<3>
DLd<3>
TO
FIG.10C3
136
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD81*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLb*<3>
DLb<3>
DLa*<3>
DLa<3>

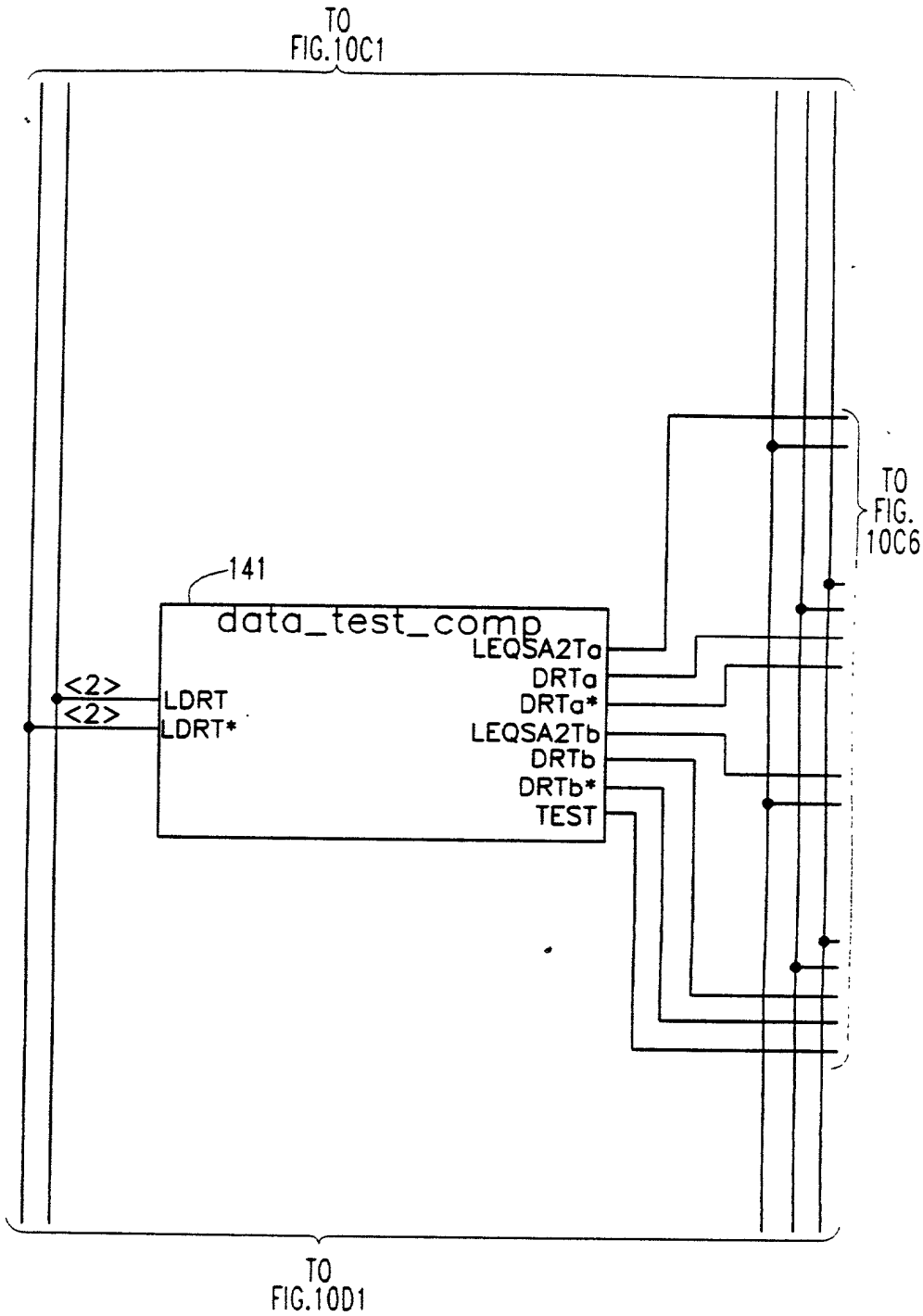

TO
FIG.10C1
TO
FIG.
10C6
141
data_test_comp
<2>
LDRT
<2>
LDRT*
LEQSA2Ta
DRTa
DRTa*
LEQSA2Tb
DRTb
DRTb*
TEST
TO
FIG.10D1

FIG. 10C5

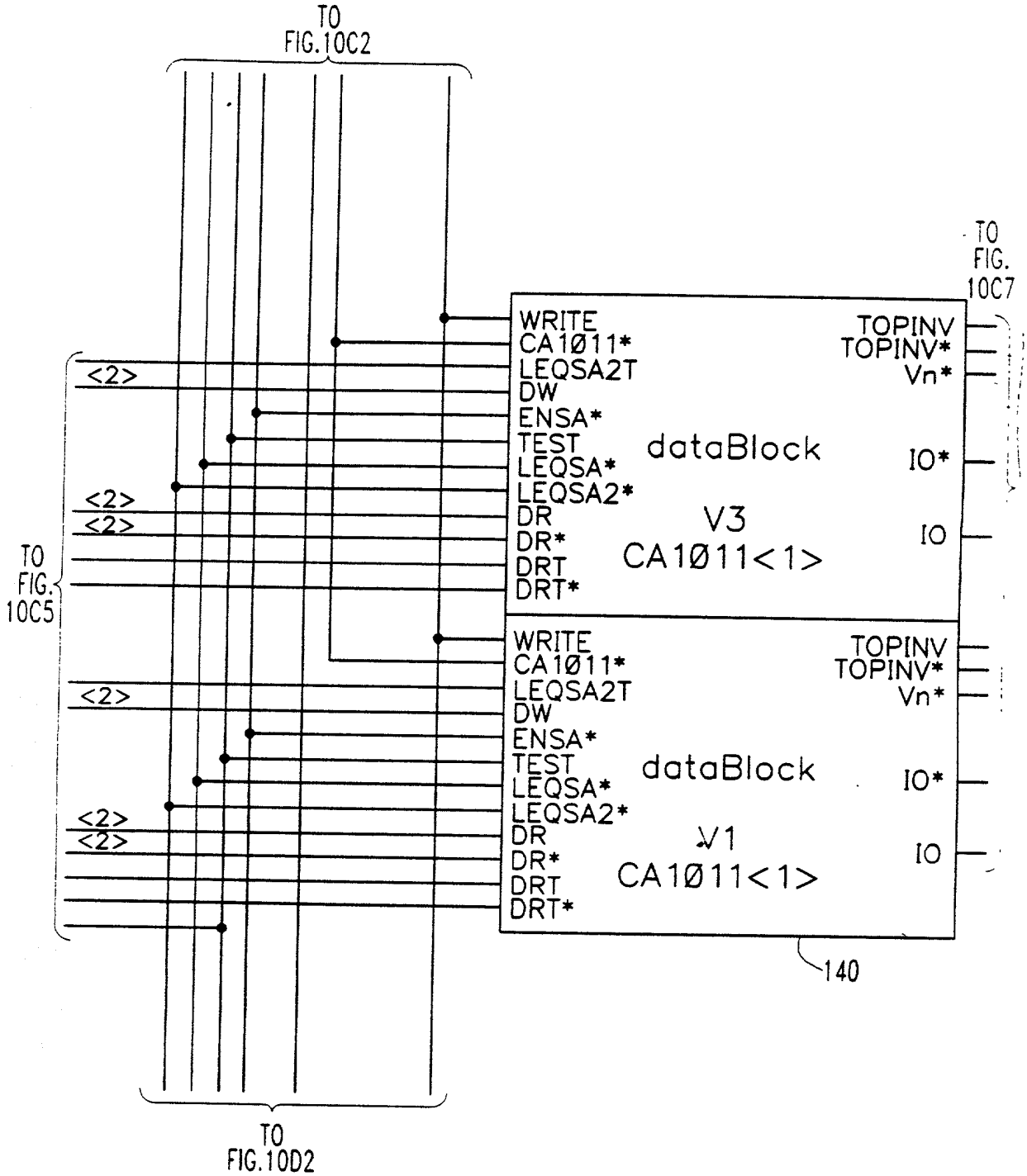

TO
FIG.10C2
TO
FIG.
10C7
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V3
CA1Ø11<1>
TOPINV
TOPINV*
Vn*
IO*
IO
<2>
<2>
<2>
TO
FIG.
10C5
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V1
CA1Ø11<1>
TOPINV
TOPINV*
Vn*
IO*
IO
<2>
<2>
<2>
140
TO
FIG.10D2

FIG. 10C6

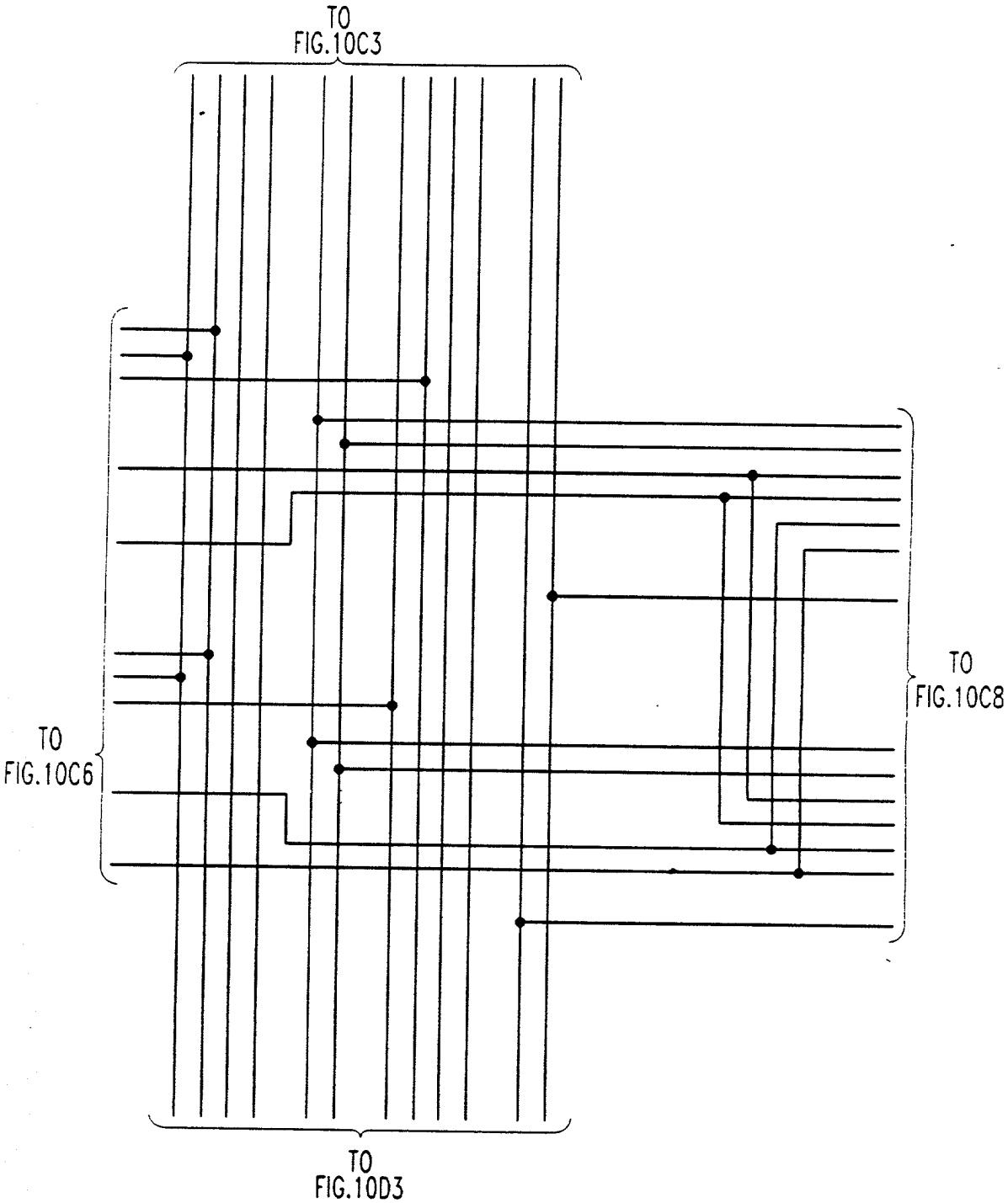


FIG. 10C7

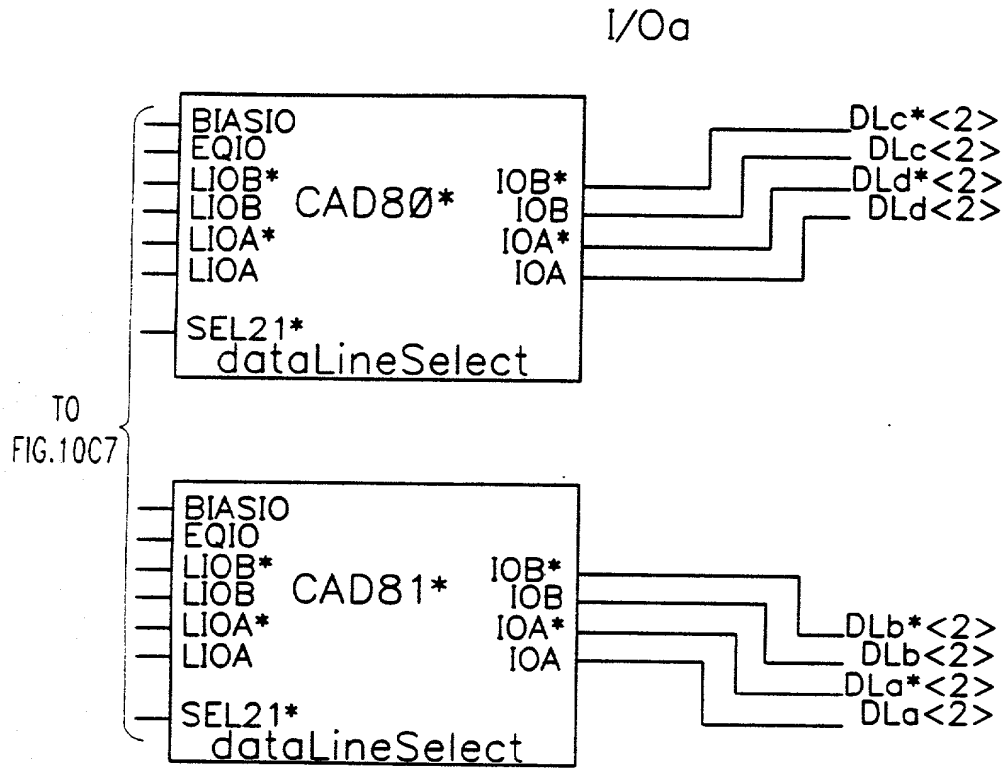

I/Oa
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD8Ø*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLc*<2>
DLc<2>
DLd*<2>
DLd<2>
TO
FIG.10C7
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD81*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLb*<2>
DLb<2>
DLa*<2>
DLa<2>

FIG. 10C8

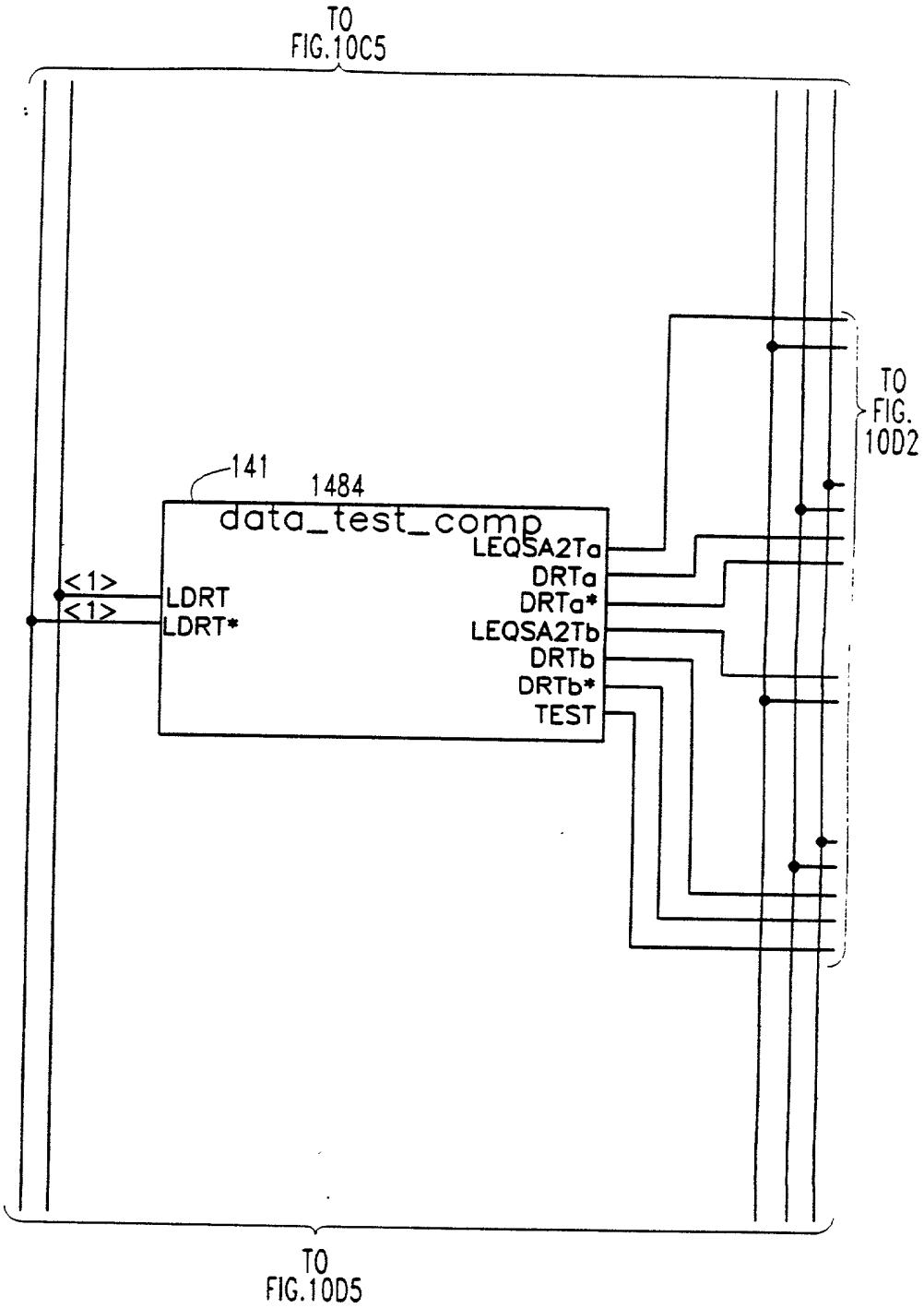

TO
FIG.10C5
TO
FIG.
10D2
141
1484
data_test_comp
<1>
LDRT
<1>
LDRT*
LEQSA2Ta
DRTa
DRTa*
LEQSA2Tb
DRTb
DRTb*
TEST
TO
FIG.10D5

FIG. 10D1

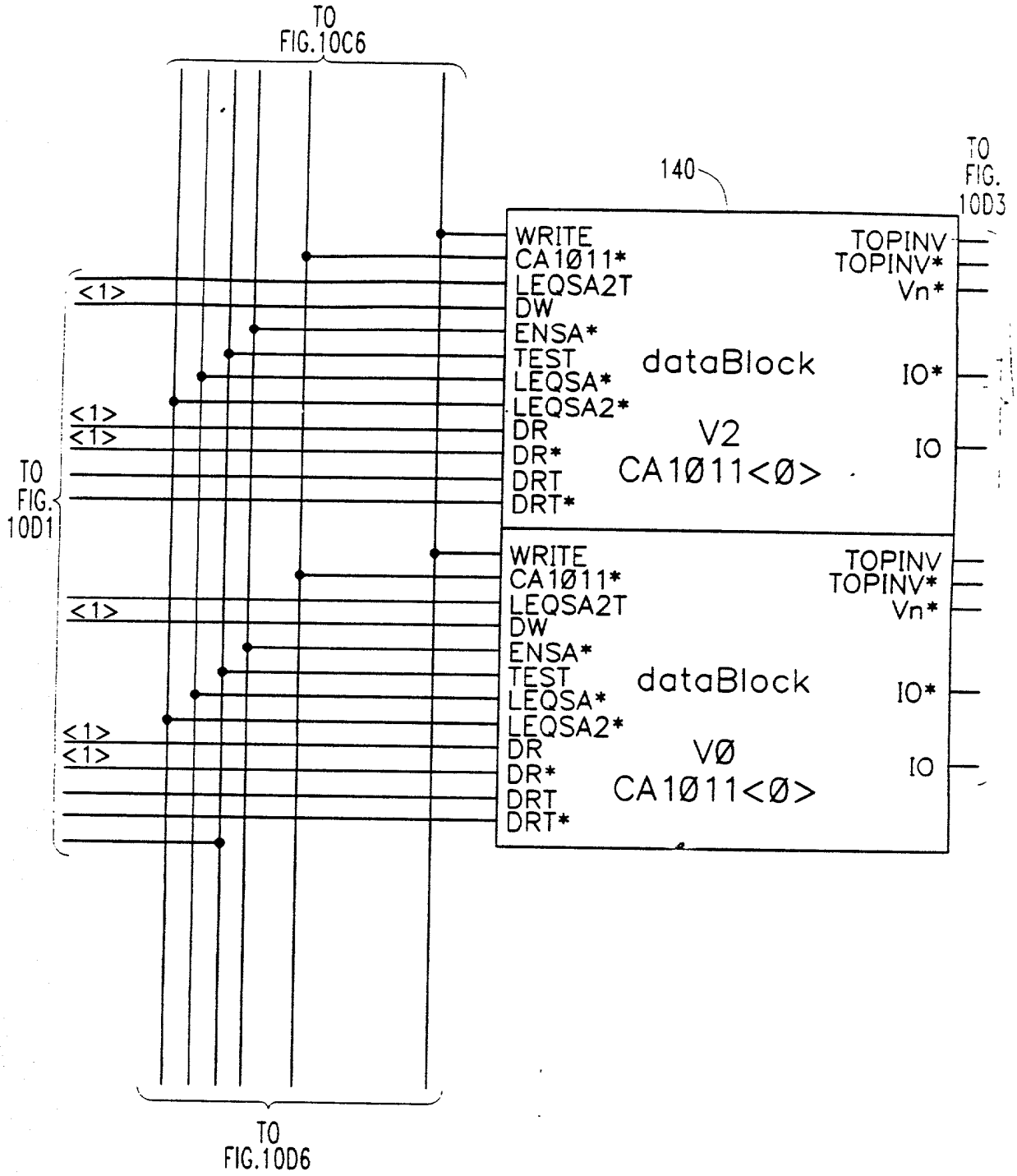

TO
FIG.10C6
140
TO
FIG.
10D3
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V2
CA1Ø11<Ø>
TOPINV
TOPINV*
Vn*
IO*
IO
<1>
<1>
<1>
TO
FIG.
10D1
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
VØ
CA1Ø11<Ø>
TOPINV
TOPINV*
Vn*
IO*
IO
<1>
<1>
<1>
TO
FIG.10D6

FIG. 10D2

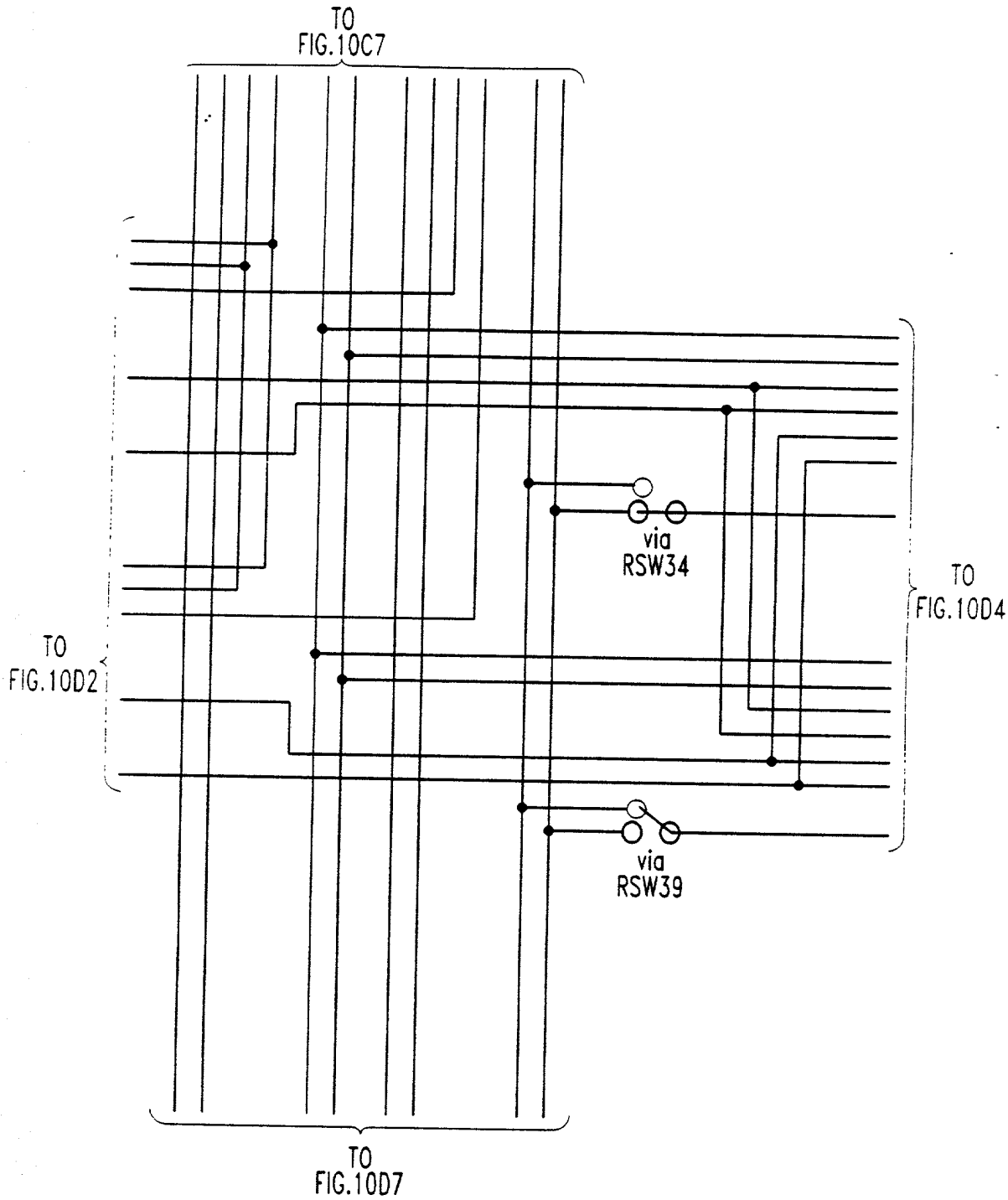

TO
FIG.10C7
via
RSW34
TO
FIG.10D4
TO
FIG.10D2
via
RSW39
TO
FIG.10D7

FIG.10D3

I/Ob

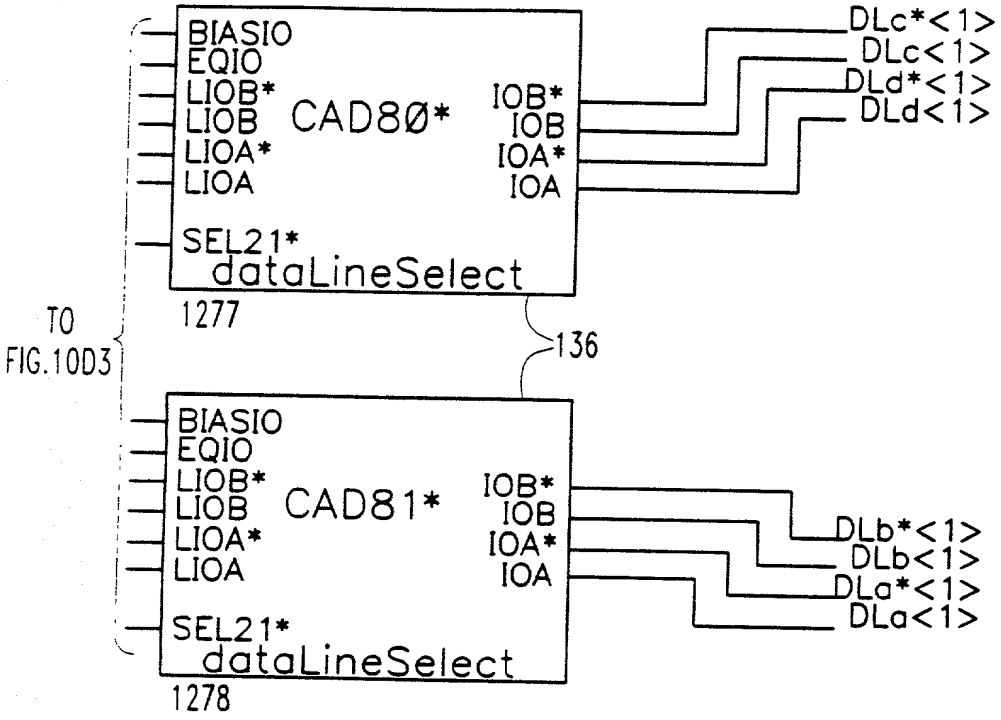

BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD80*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
1277
DLc*<1>
DLc<1>
DLd*<1>
DLd<1>
TO
FIG.10D3
136
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD81*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
1278
DLb*<1>
DLb<1>
DLa*<1>
DLa<1>

FIG. 10D4

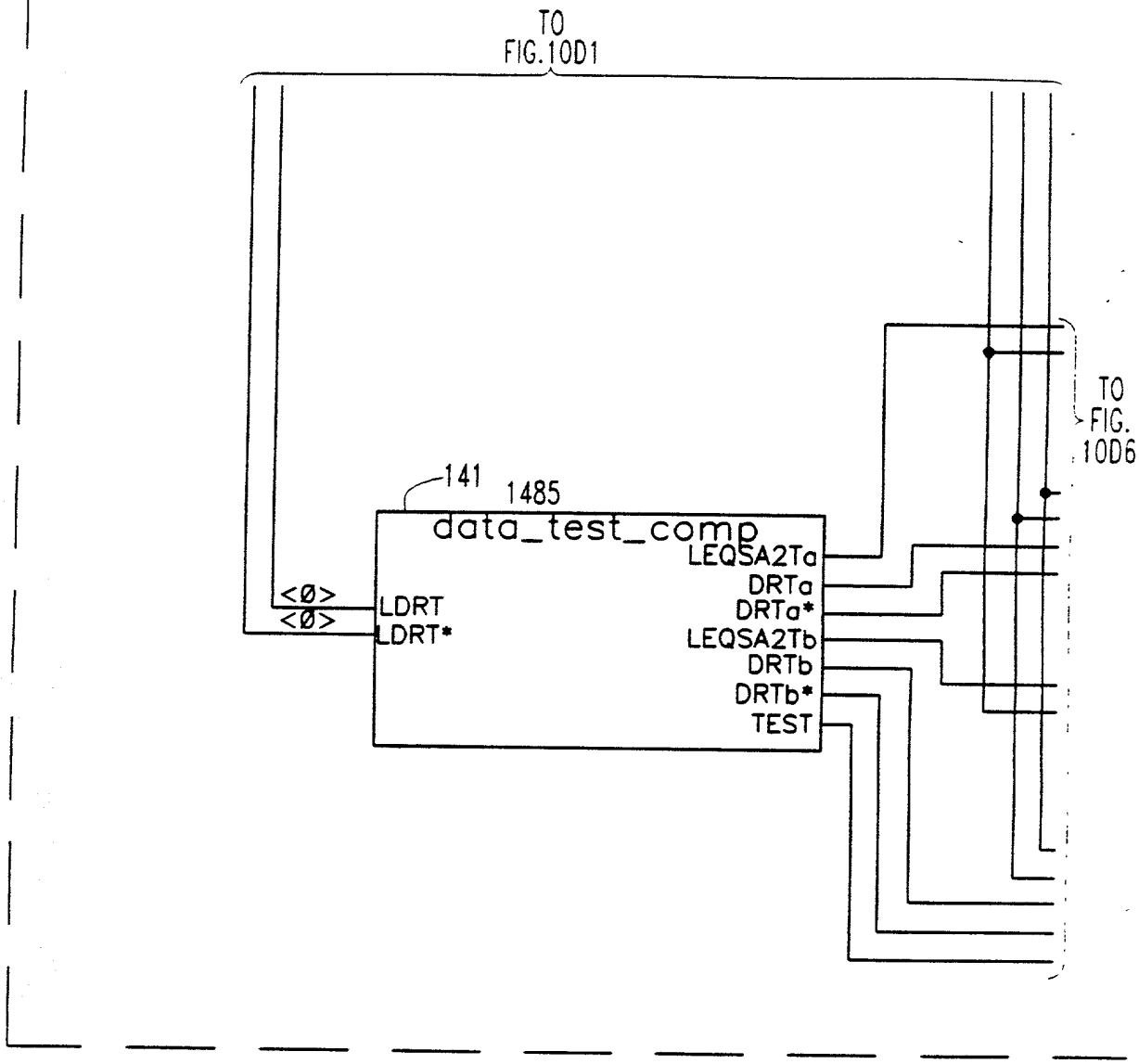

TO
FIG.10D1
TO
FIG.
10D6
141
1485
data_test_comp
<Ø>
<Ø>
LDRT
LDRT*
LEQSA2Ta
DRTa
DRTa*
LEQSA2Tb
DRTb
DRTb*
TEST

FIG. 10D5

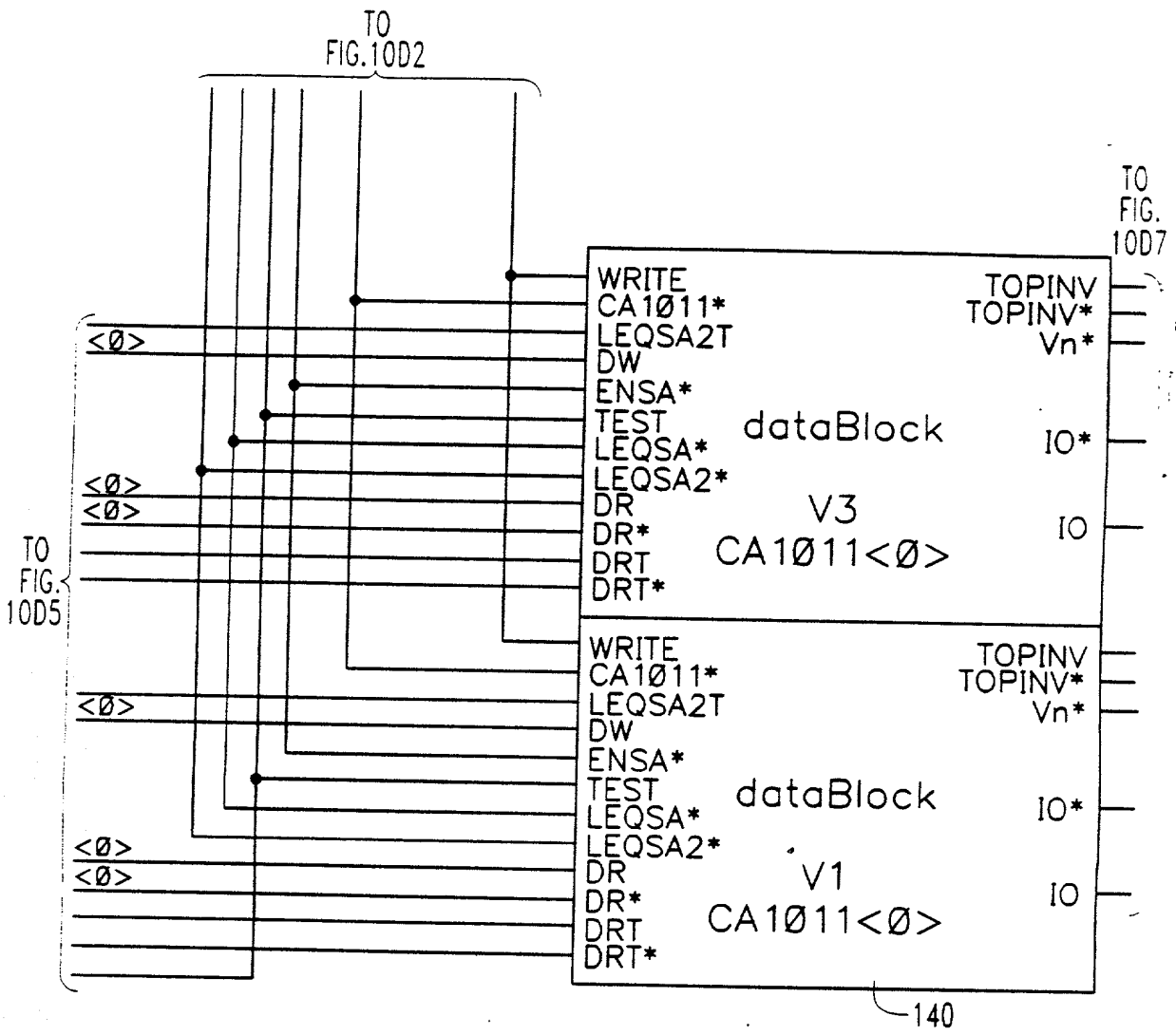

TO
FIG. 10D2
TO
FIG.
10D7
TO
FIG.
10D5
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V3
CA1Ø11<Ø>
TOPINV
TOPINV*
Vn*
IO*
IO
<Ø>
<Ø>
<Ø>
<Ø>
<Ø>
<Ø>
WRITE
CA1Ø11*
LEQSA2T
DW
ENSA*
TEST
LEQSA*
LEQSA2*
DR
DR*
DRT
DRT*
dataBlock
V1
CA1Ø11<Ø>
TOPINV
TOPINV*
Vn*
IO*
IO
140

FIG. 10D6

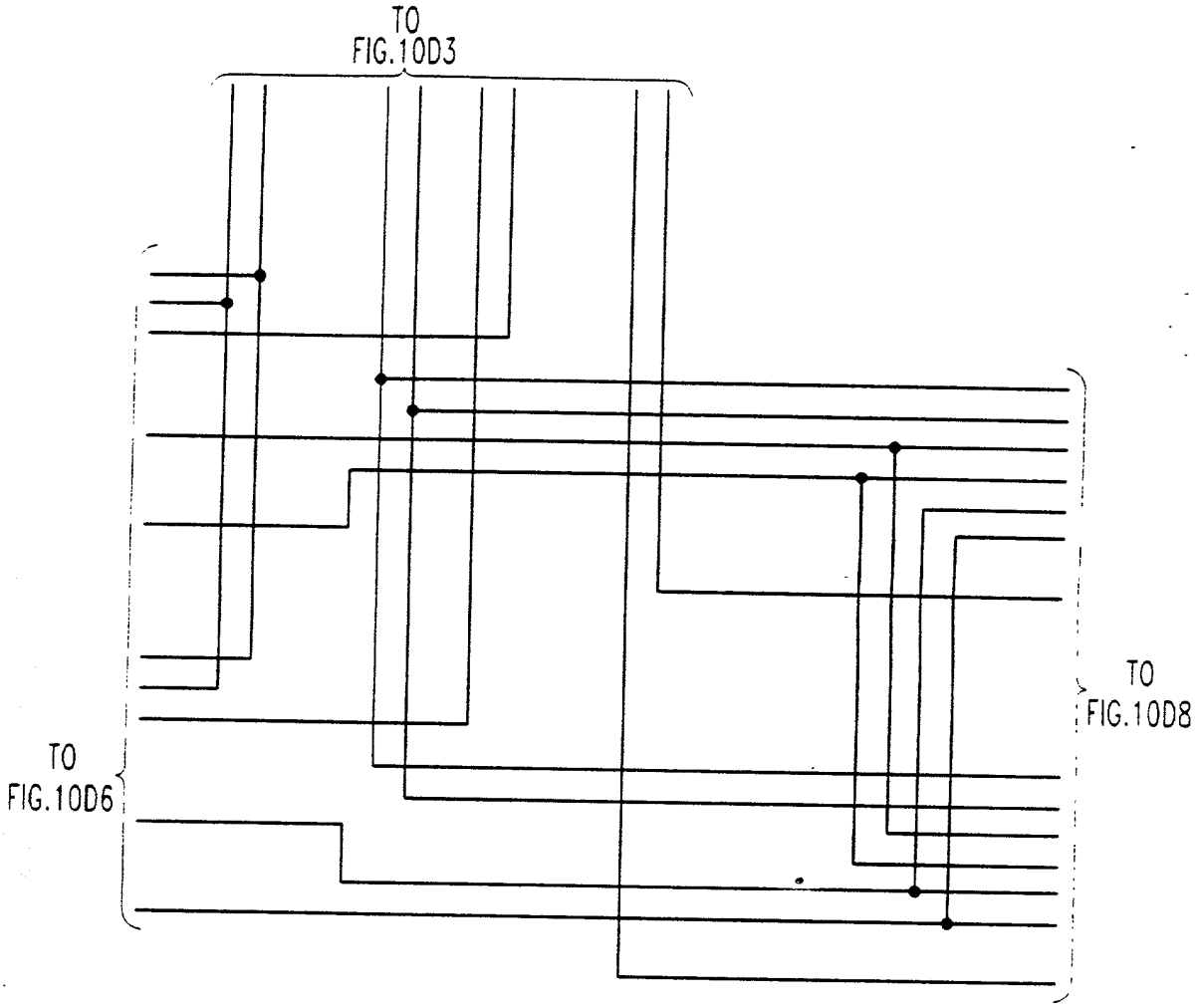


FIG.10D7

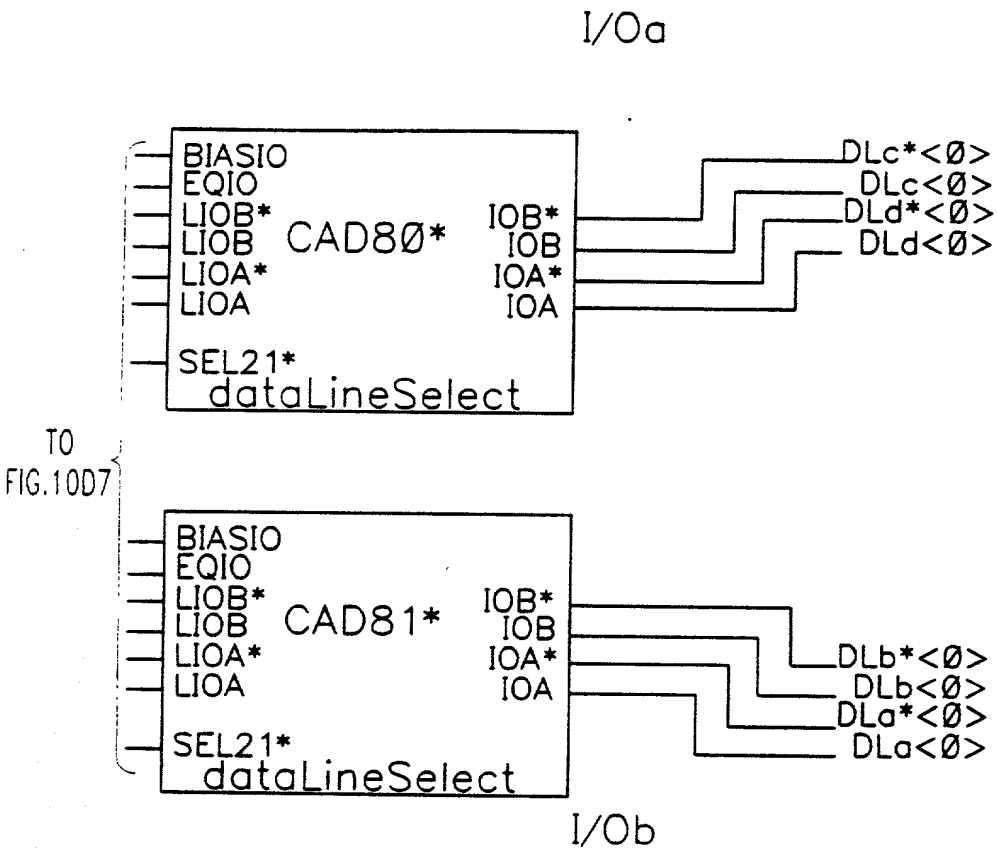

I/Oa
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD80*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLc*<0>
DLc<0>
DLd*<0>
DLd<0>
TO
FIG.10D7
BIASIO
EQIO
LIOB*
LIOB
LIOA*
LIOA
CAD81*
IOB*
IOB
IOA*
IOA
SEL21*
dataLineSelect
DLb*<0>
DLb<0>
DLa*<0>
DLa<0>
I/Ob

FIG. 10D8

FIG. 11-1

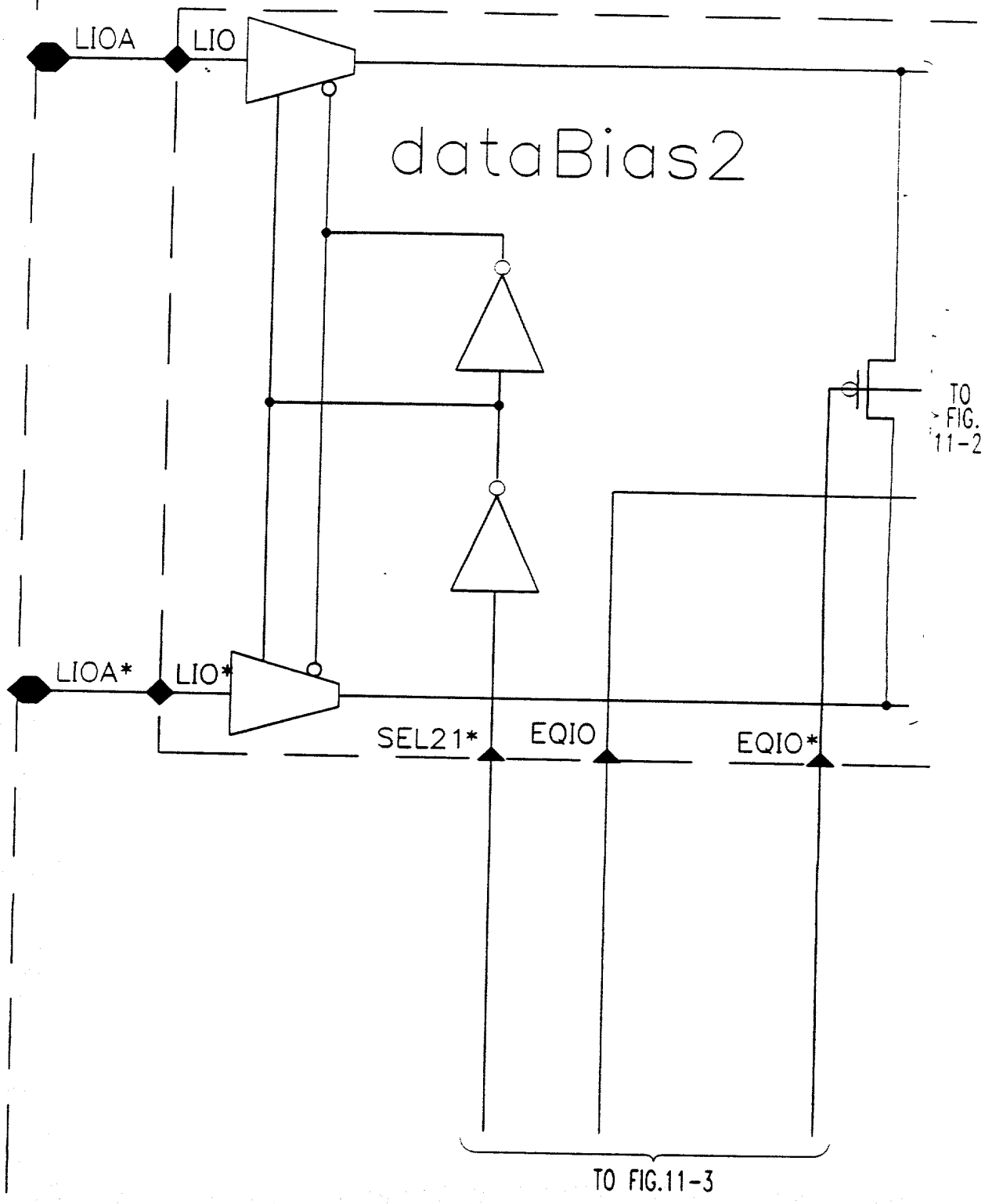
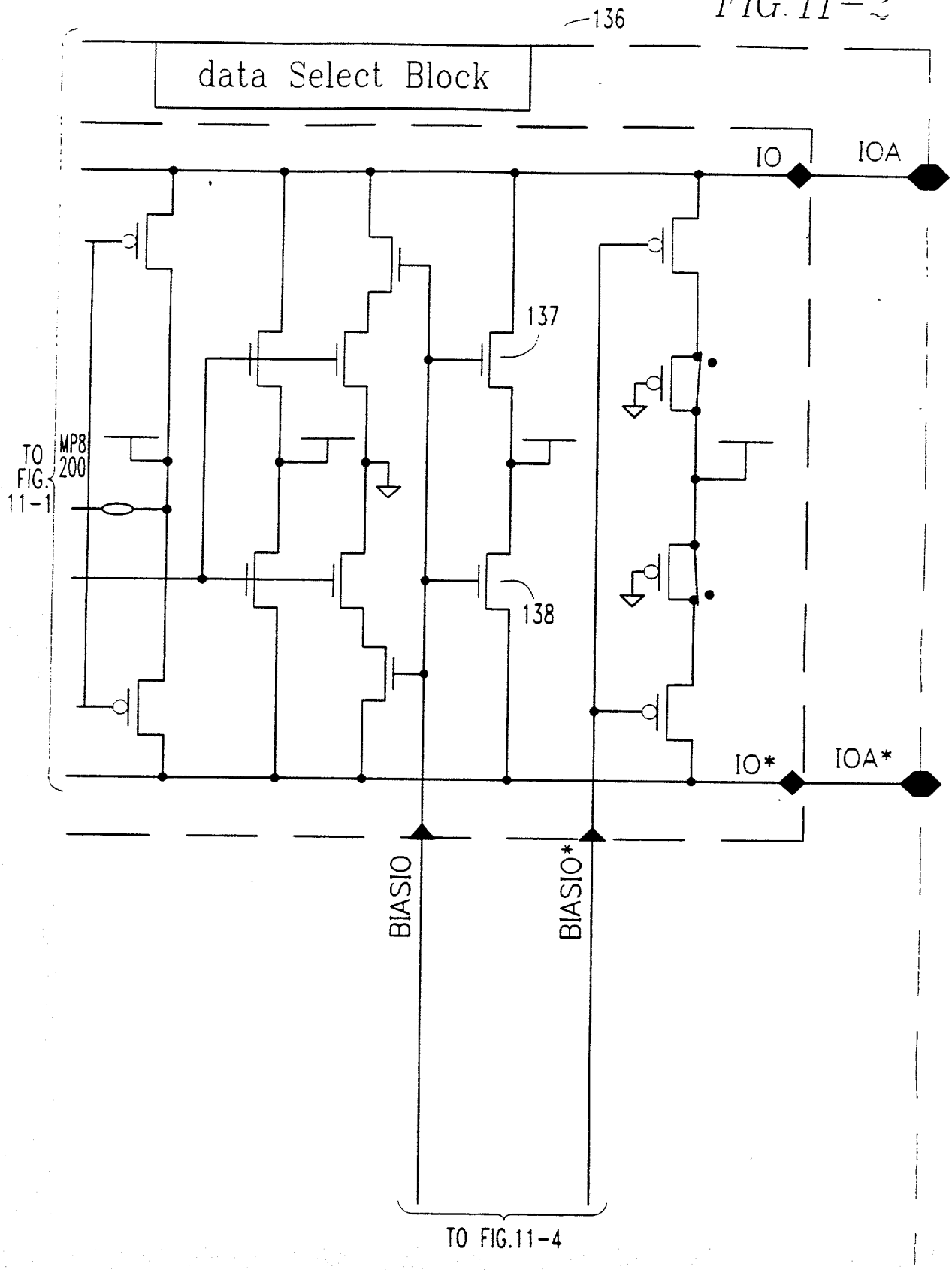

136
LIOA
LIO
dataBias2
TO FIG. 11-2
LIOA*
LIO*
SEL21*
EQIO
EQIO*
TO FIG.11-3

FIG. 11-2


136
data Select Block
IO
IOA
137
TO FIG. 11-1
MP8 200
138
IO*
IOA*
BIASIO
BIASIO*
TO FIG.11-4

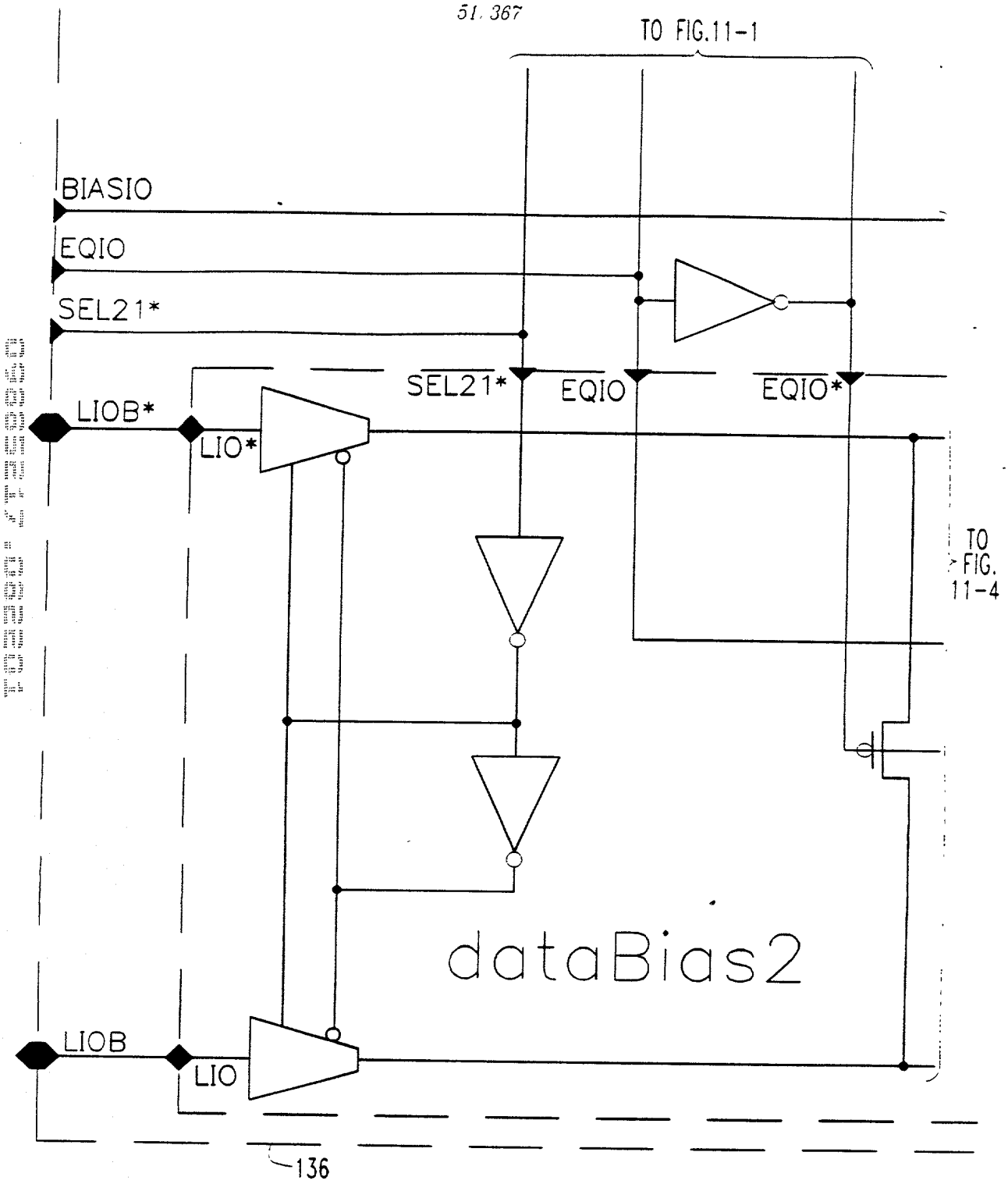

TO FIG.11-1
BIASIO
EQIO
SEL21*
SEL21*
EQIO
EQIO*
LIOB*
LIO*
TO FIG. 11-4
dataBias2
LIOB
LIO
136

FIG. 11-3

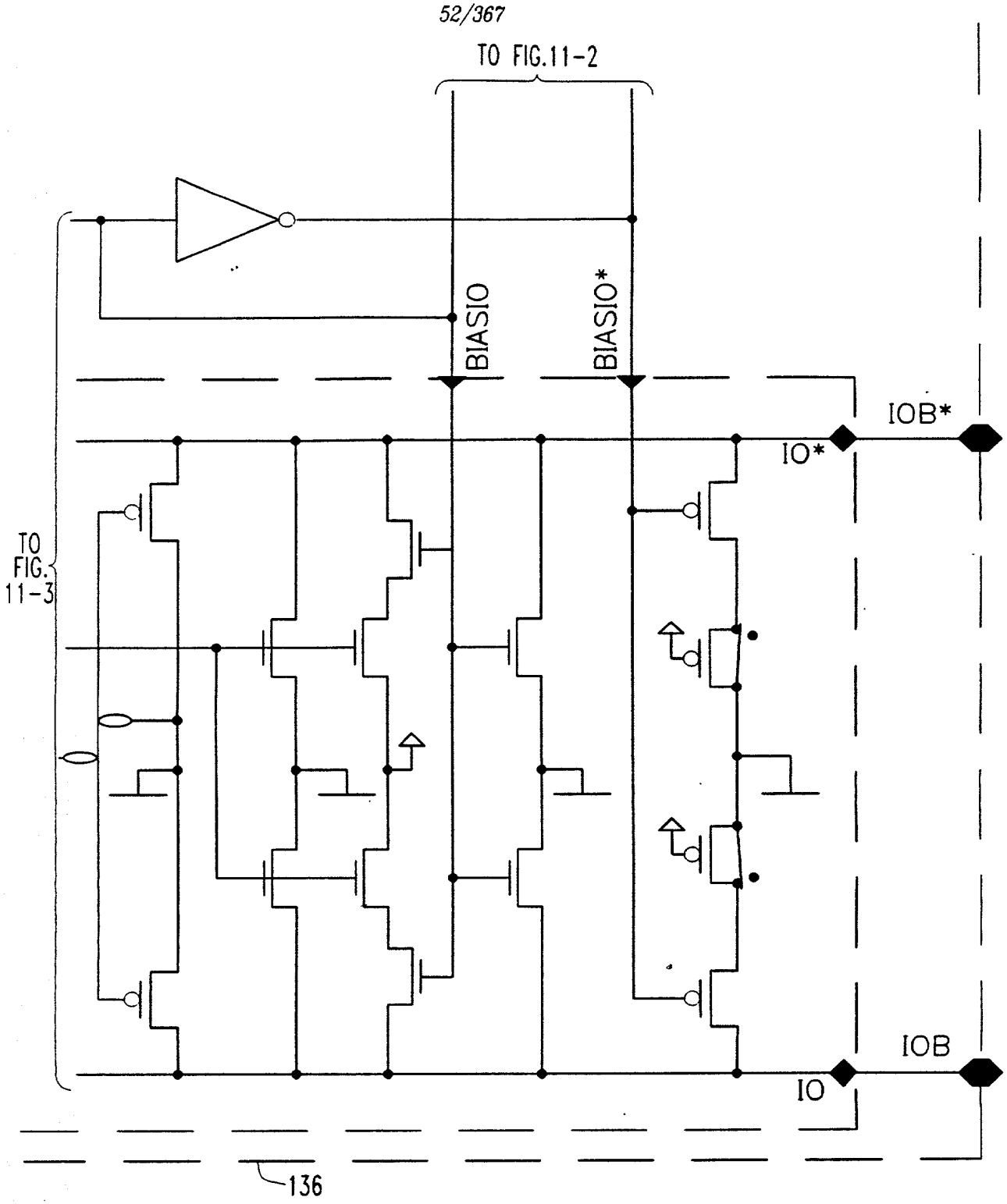


FIG. 11-4

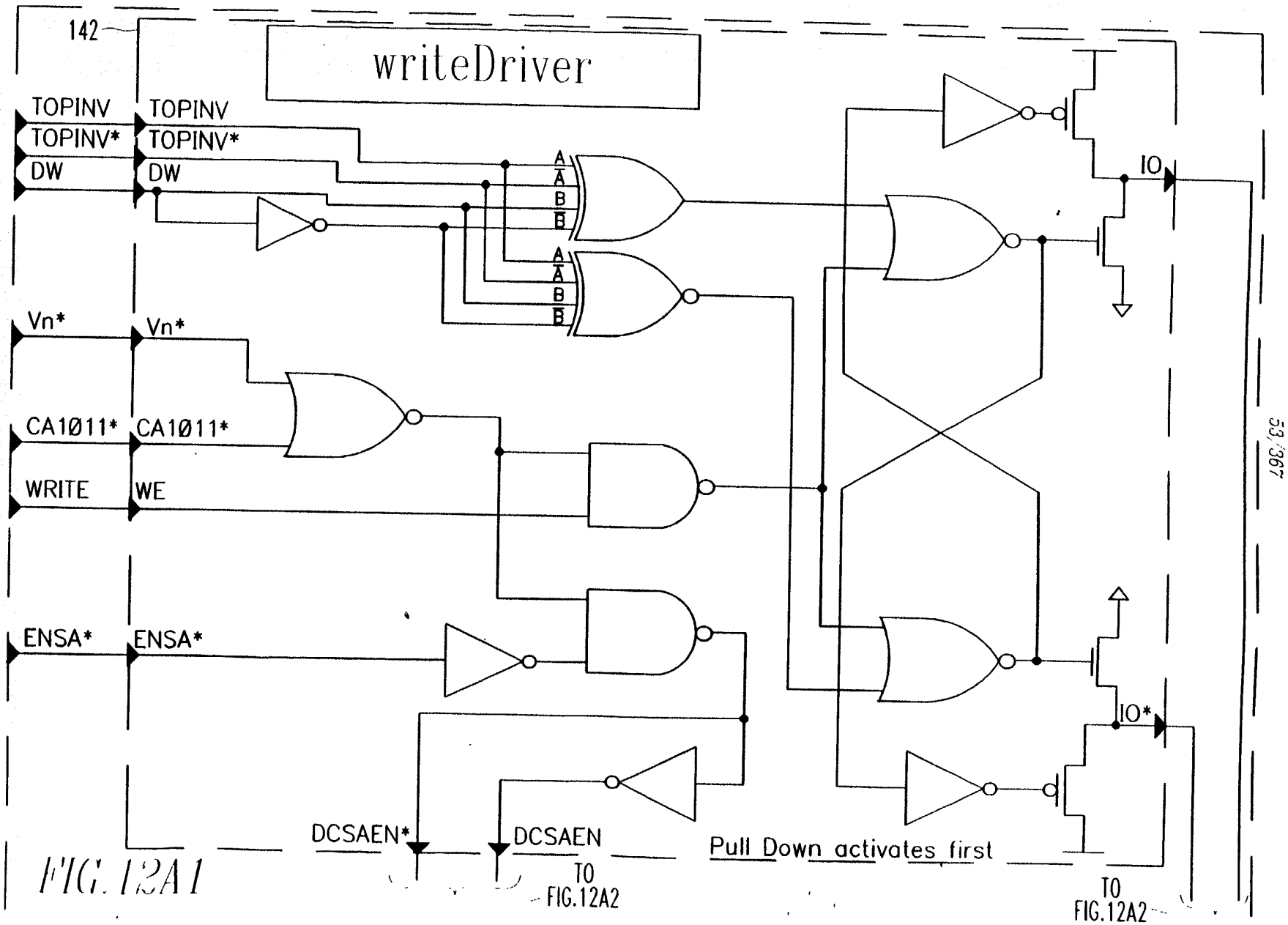


FIG. 12A1

53,367

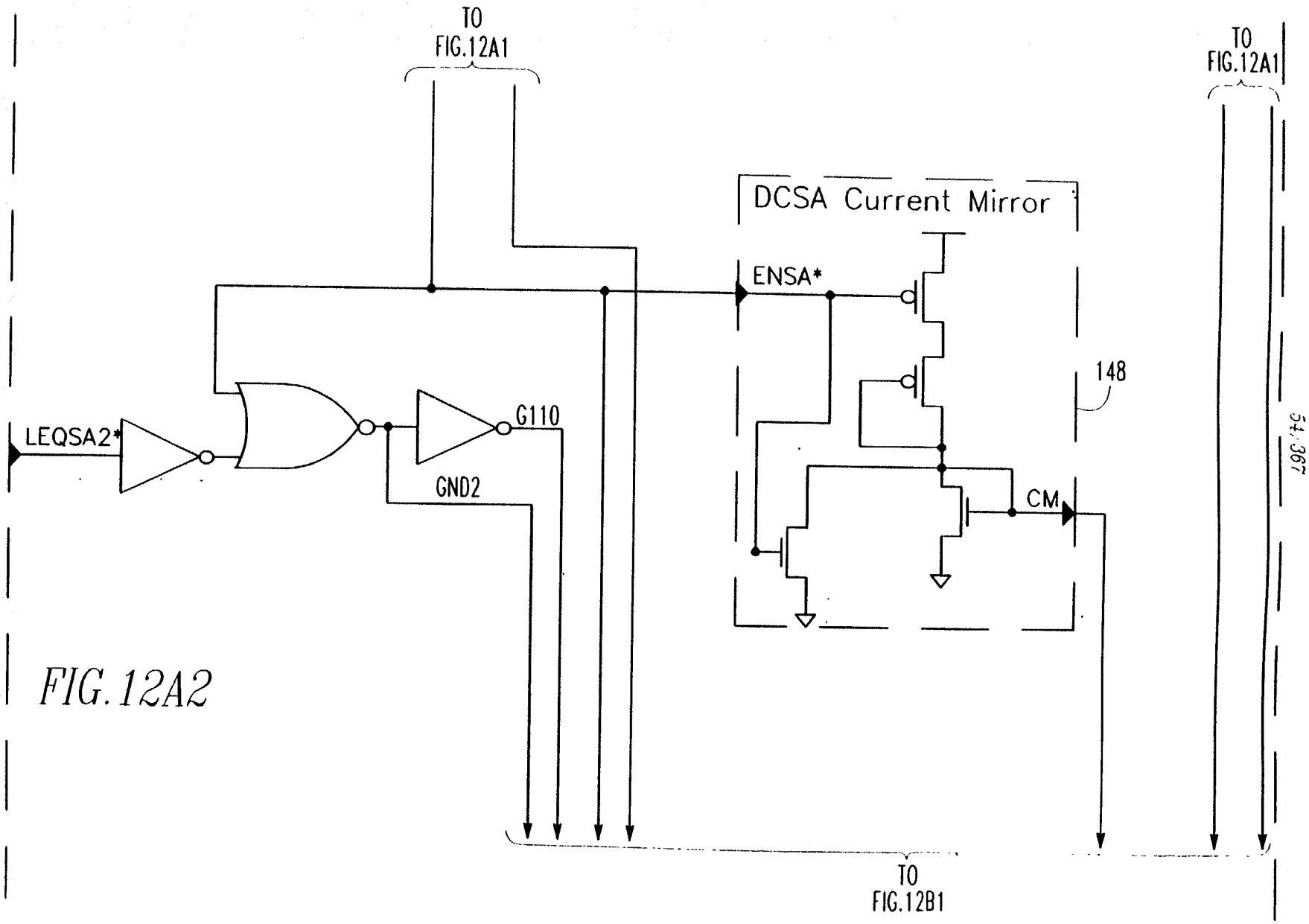
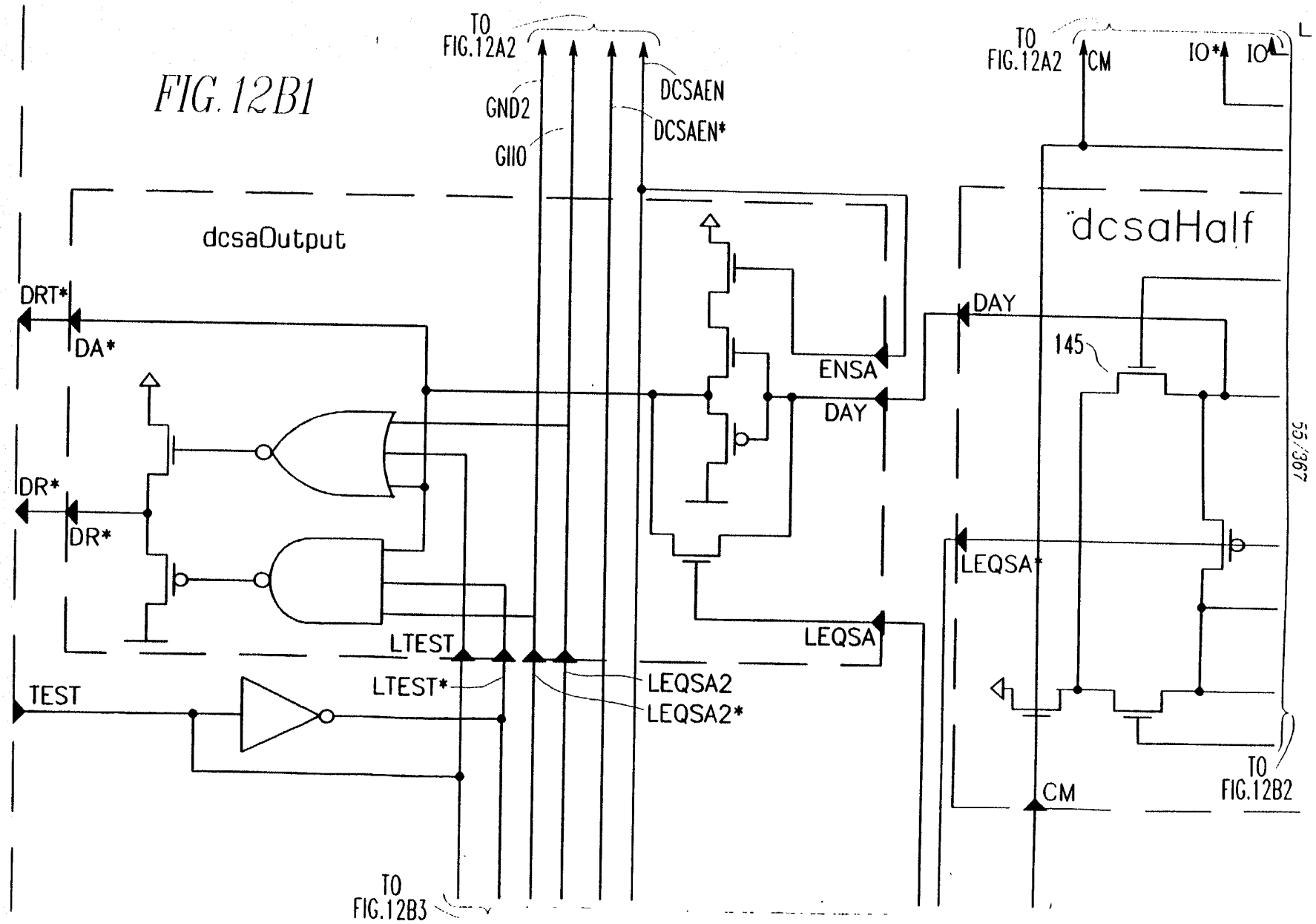

TO
FIG.12A1
TO
FIG.12A1
DCSA Current Mirror
ENSA*
148
LEQSA2*
G110
GND2
CM
54.367
TO
FIG.12B1

FIG.12A2

FIG. 12B1



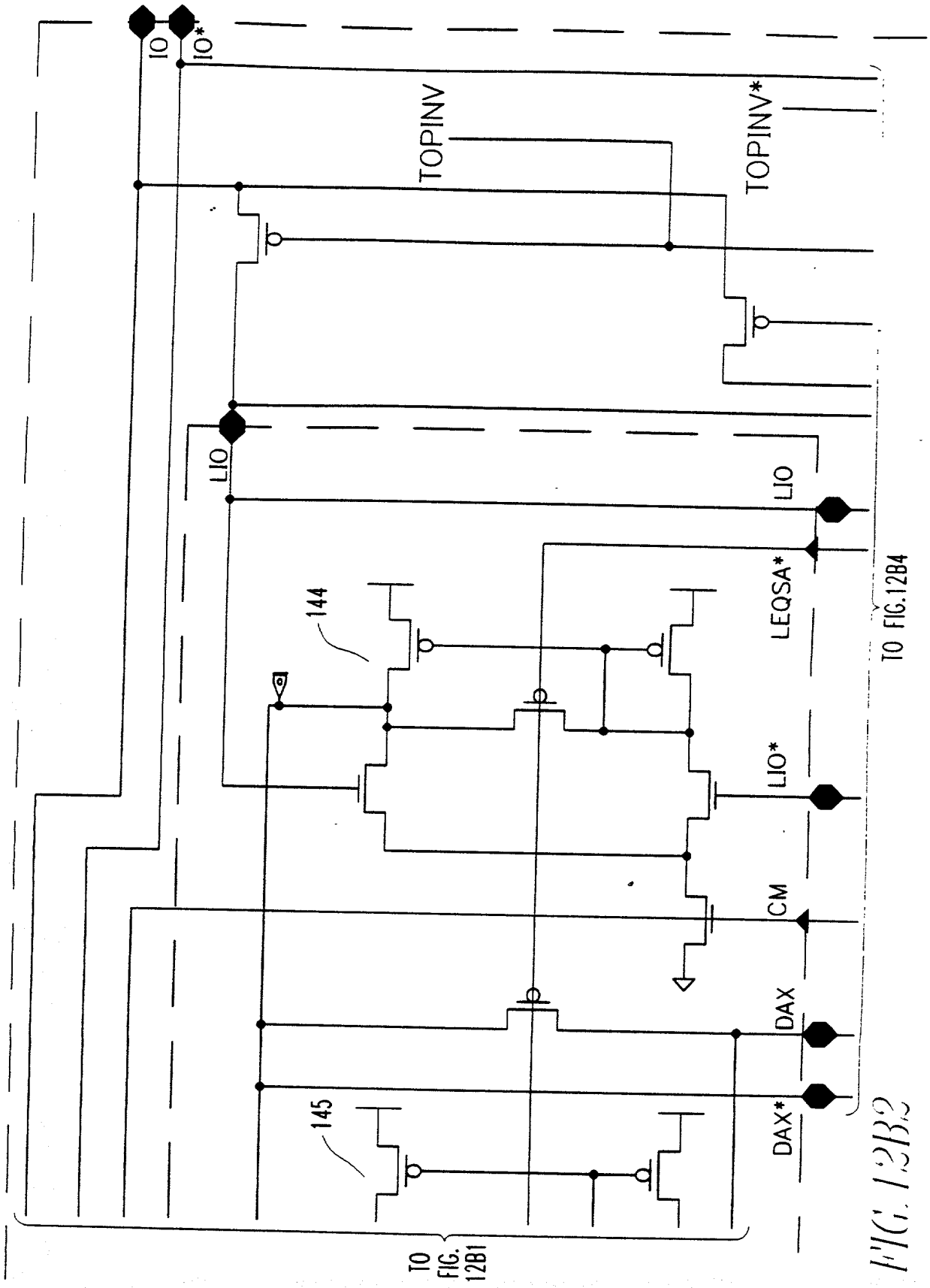
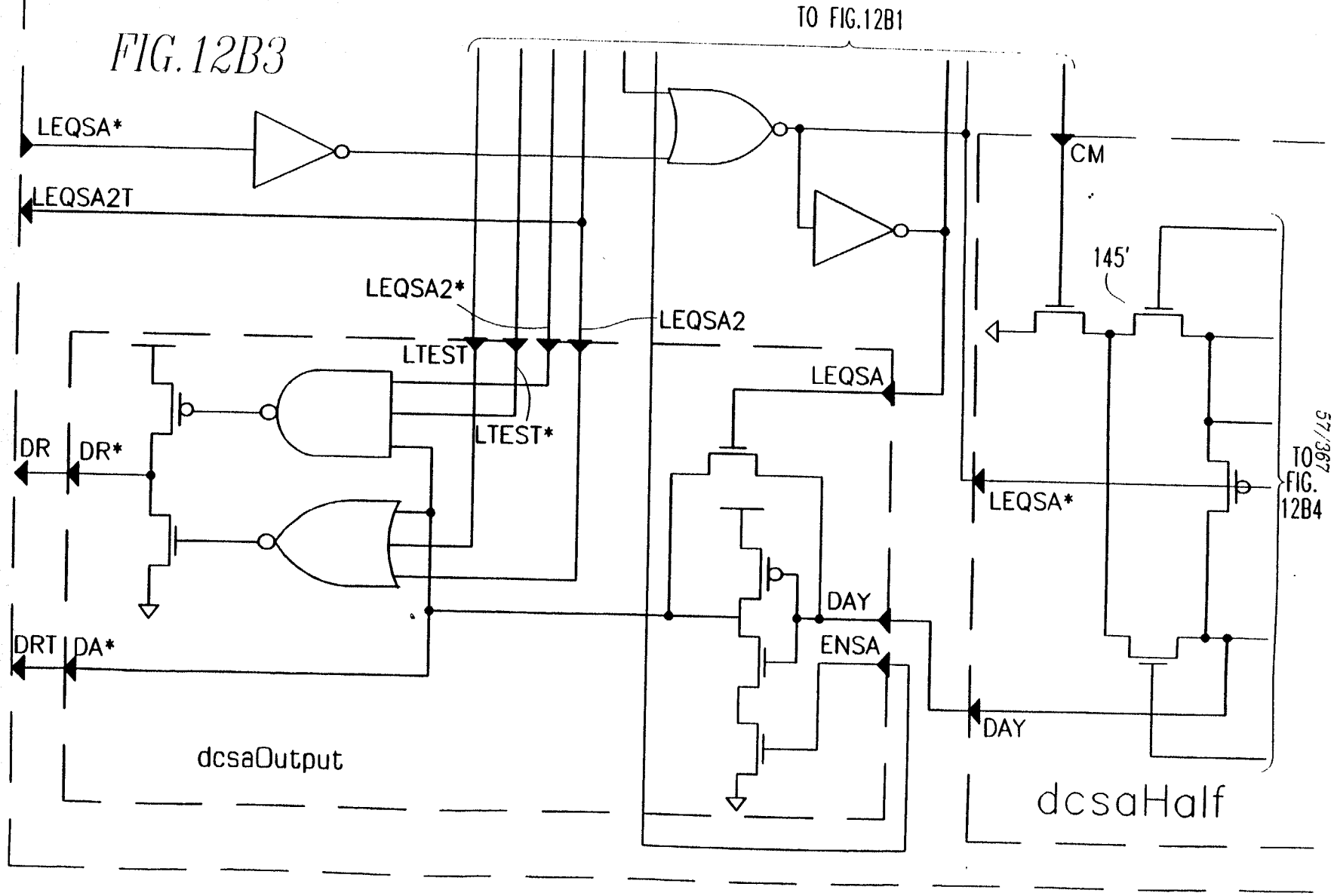

IO
IO*
TOPINV
TOPINV*
LIO
LIO
LEQSA*
144
LIO*
CM
DAX
DAX*
145
TO FIG. 12B4
TO FIG. 12B1

FIG. 12B2

FIG. 12B3



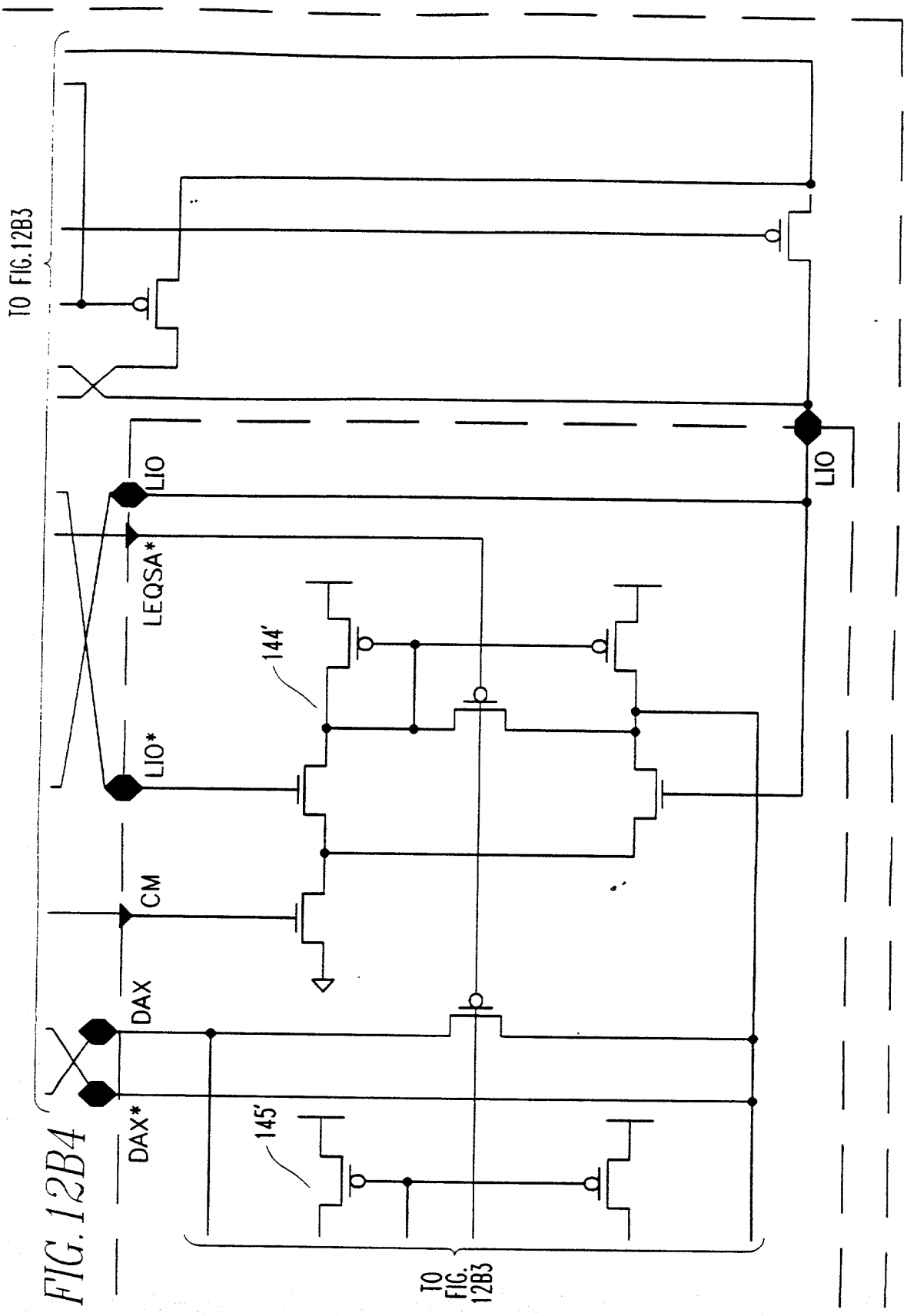


FIG. 12B4

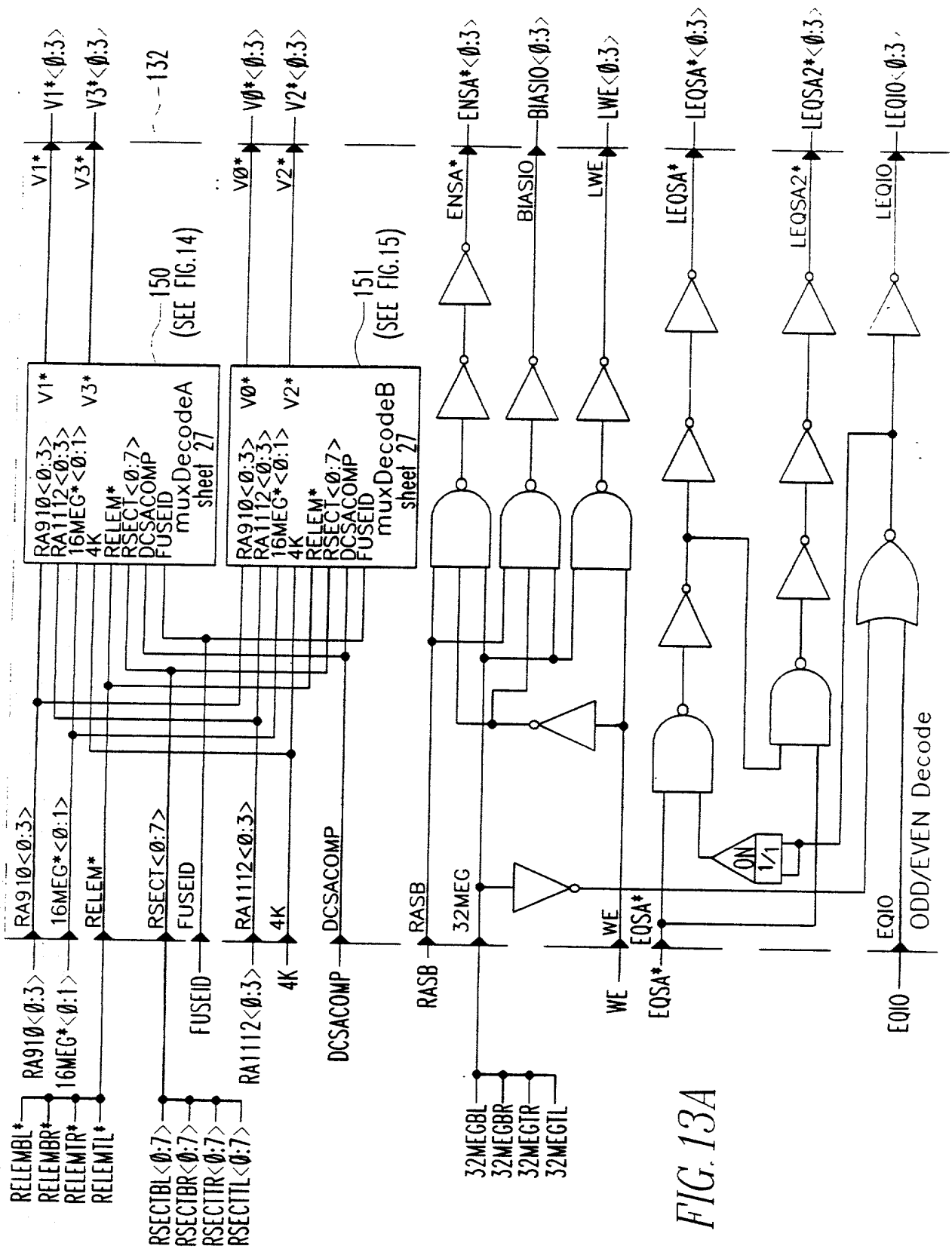

RELEMBL*
RELEMBR*
RELEMTR*
RELEMTL*
RSECTBL<Ø:7>
RSECTBR<Ø:7>
RSECTTR<Ø:7>
RSECTTL<Ø:7>
RA910<Ø:3>
16MEG*<Ø:1>
RELEM*
RSECT<Ø:7>
FUSEID
RA1112<Ø:3>
4K
DCSACOMP
RASB
32MEG
32MEGBL
32MEGBR
32MEGTR
32MEGTL
WE
EQSA*
EQIO
ODD/EVEN Decode
ON
1/1
RA910<Ø:3>
RA1112<Ø:3>
16MEG*<Ø:1>
4K
RELEM*
RSECT<Ø:7>
DCSACOMP
FUSEID
muxDecodeA
sheet 27
muxDecodeB
sheet 27
V1*
V3*
VØ*
V2*
150
(SEE FIG.14)
151
(SEE FIG.15)
132
V1*<Ø:3>
V3*<Ø:3>
VØ*<Ø:3>
V2*<Ø:3>
ENSA*
BIASIO
LWE
LEQSA*
LEQSA2*
LEQIO
ENSA*<Ø:3>
BIASIO<Ø:3>
LWE<Ø:3>
LEQSA*<Ø:3>
LEQSA2*<Ø:3>
LEQIO<Ø:3>

FIG. 13A

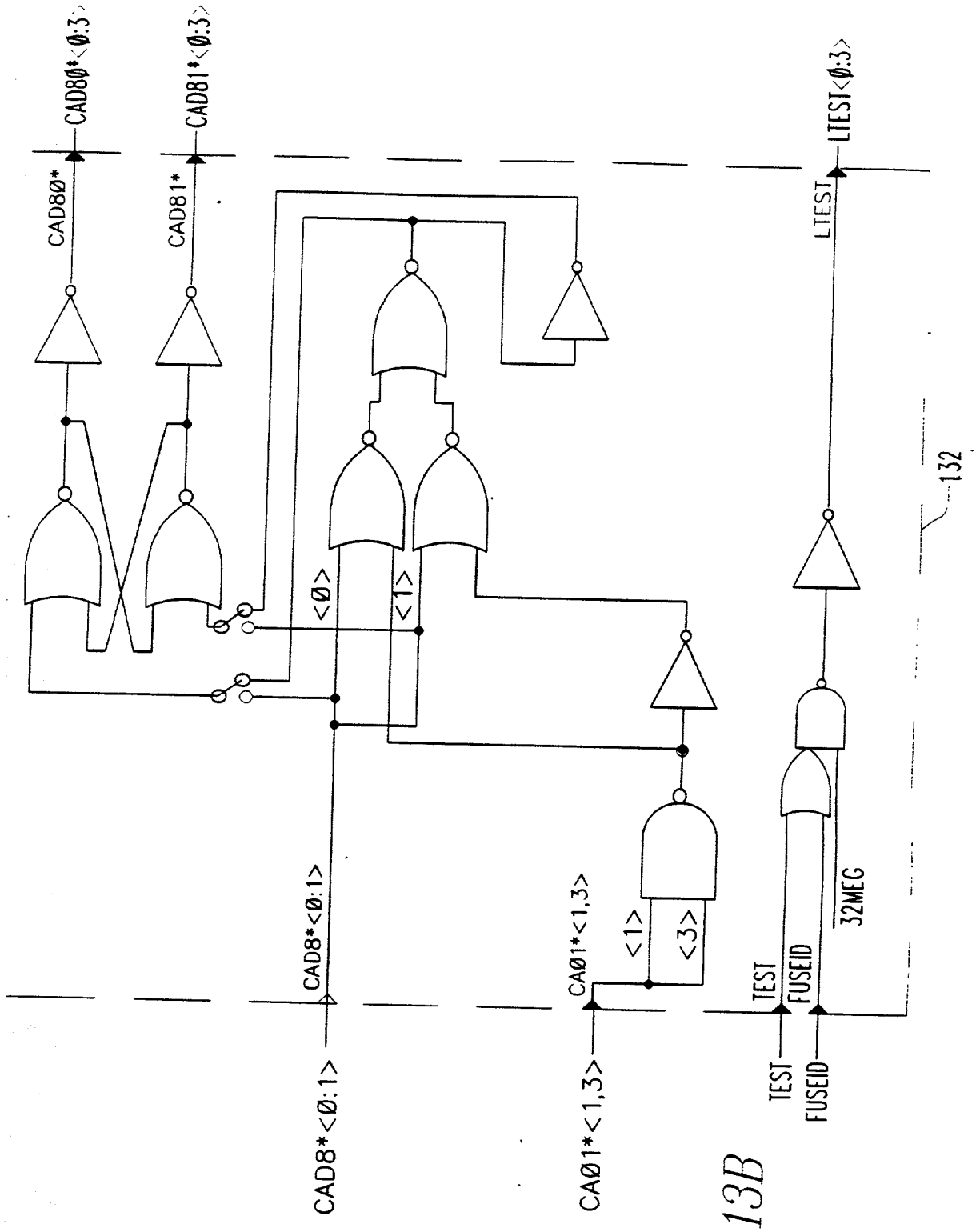

CAD8Ø*<Ø:3>
CAD81*<Ø:3>
LTEST<Ø:3>
CAD8Ø*
CAD81*
LTEST
132
<Ø>
<1>
CAD8*<Ø:1>
CAØ1*<1,3>
<1>
<3>
TEST
FUSEID
32MEG
CAD8*<Ø:1>
CAØ1*<1,3>
TEST
FUSEID

FIG. 13B

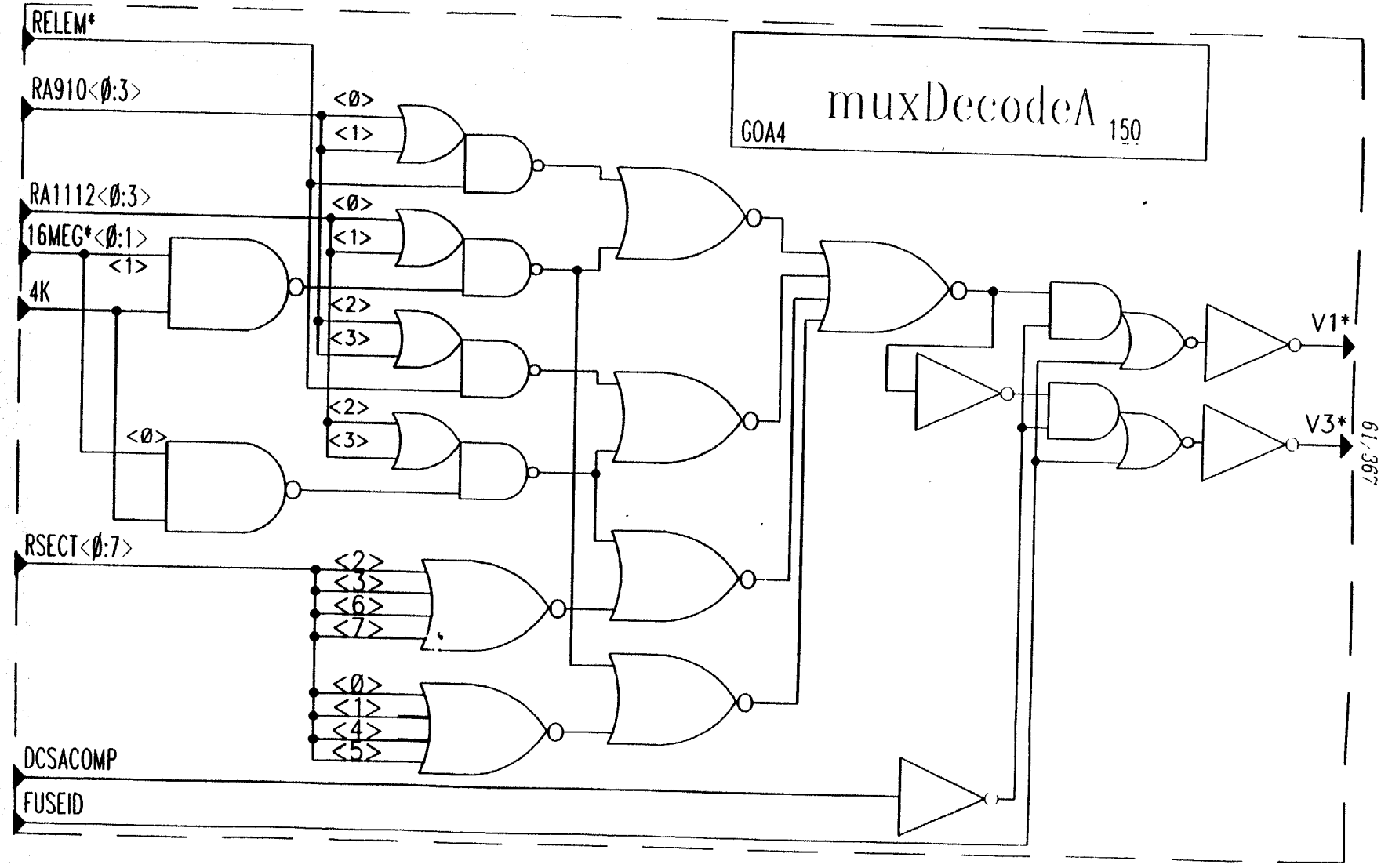
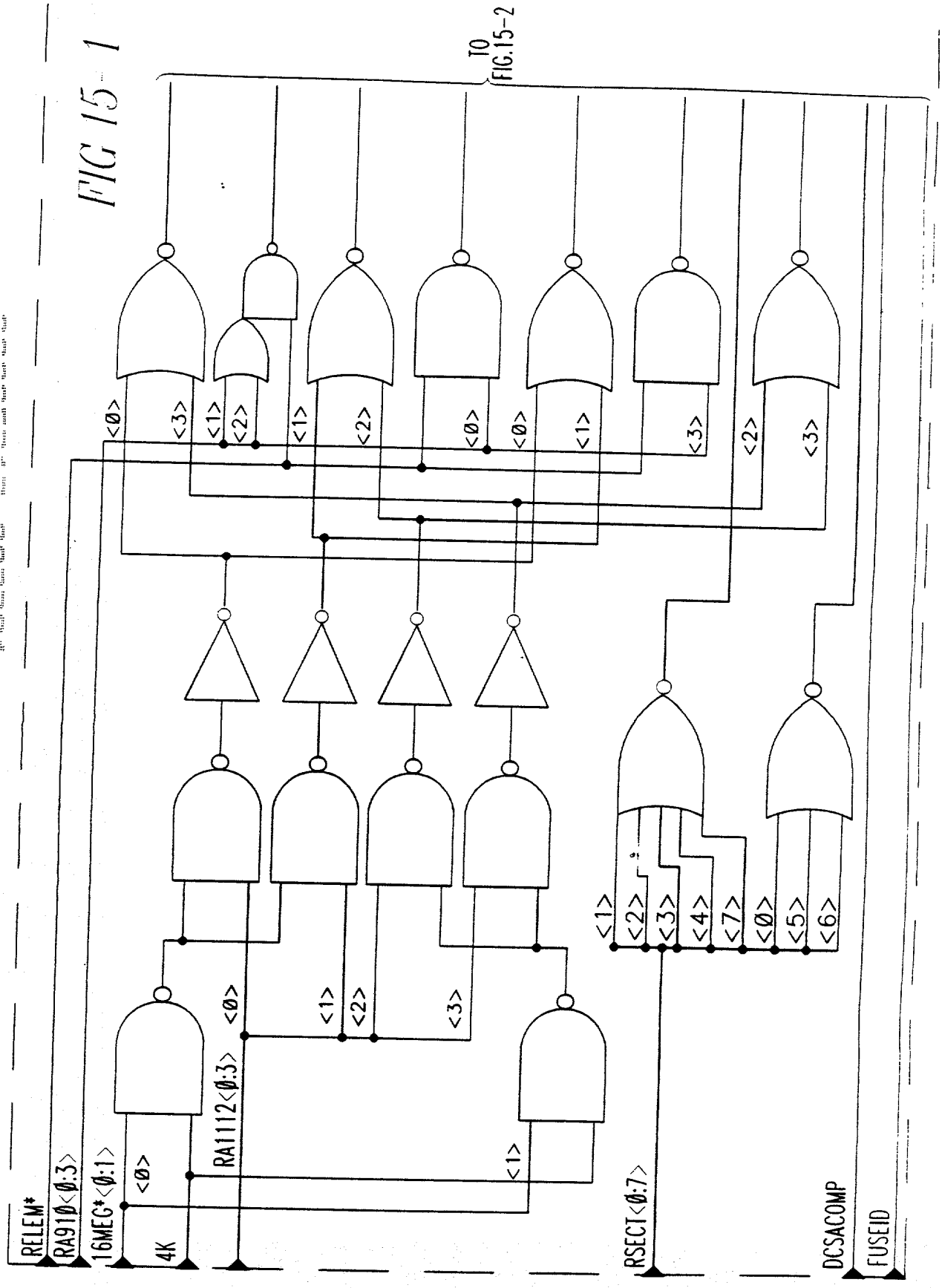

RELEM*
RA910<Ø:3>
RA1112<Ø:3>
16MEG*<Ø:1>
4K
RSECT<Ø:7>
DCSACOMP
FUSEID
GOA4
muxDecodeA 150
V1*
V3*
61,367

FIG 11

FIG 15-1


TO FIG.15-2
RELEM*
RA91Ø<Ø:3>
16MEG*<Ø:1>
<Ø>
4K
RA1112<Ø:3>
<Ø>
<1>
<2>
<3>
<1>
<Ø>
<3>
<1>
<2>
<1>
<2>
<Ø>
<Ø>
<1>
<3>
<2>
<3>
<1>
<2>
<3>
<4>
<7>
<Ø>
<5>
<6>
RSECT<Ø:7>
DCSACOMP
FUSEID

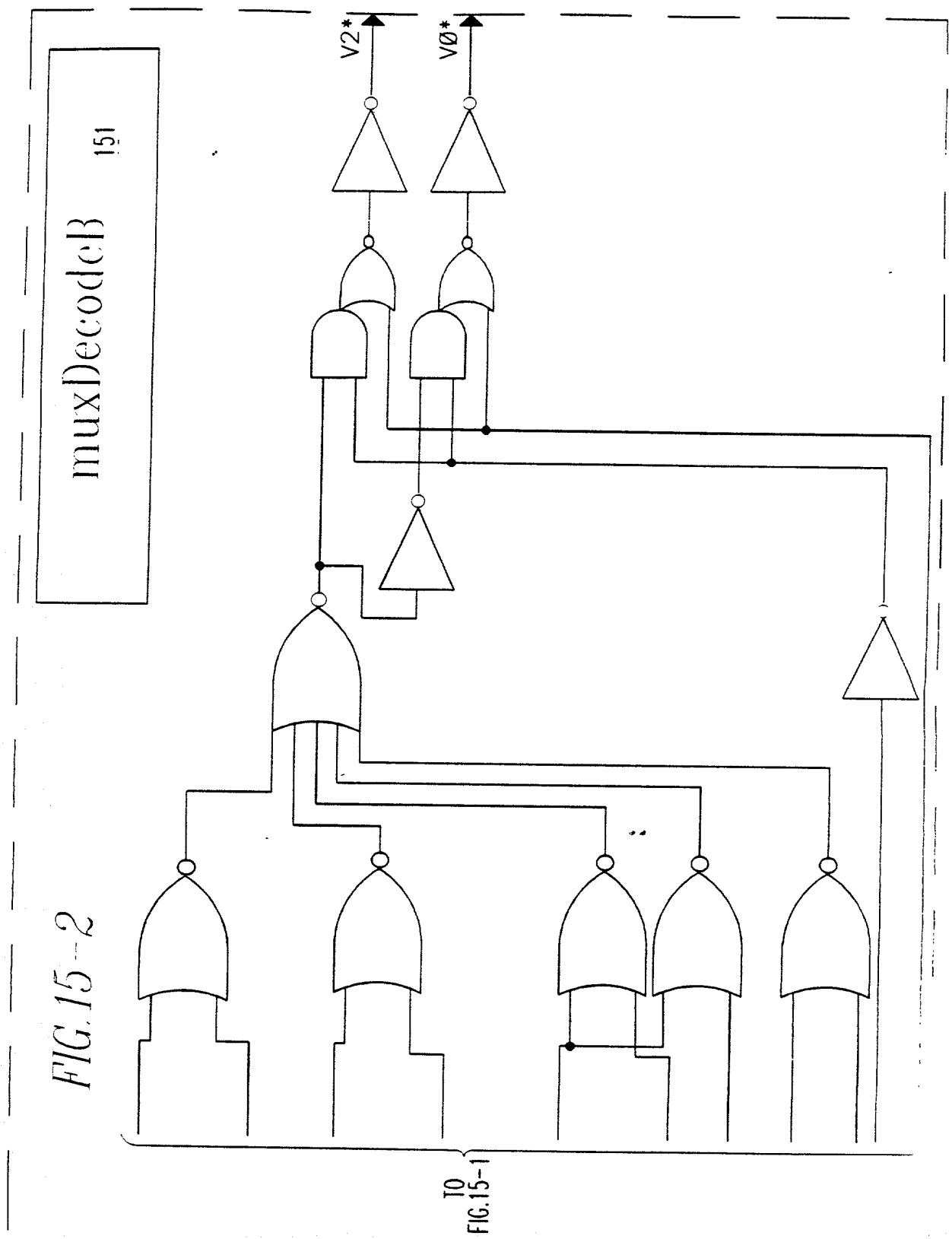
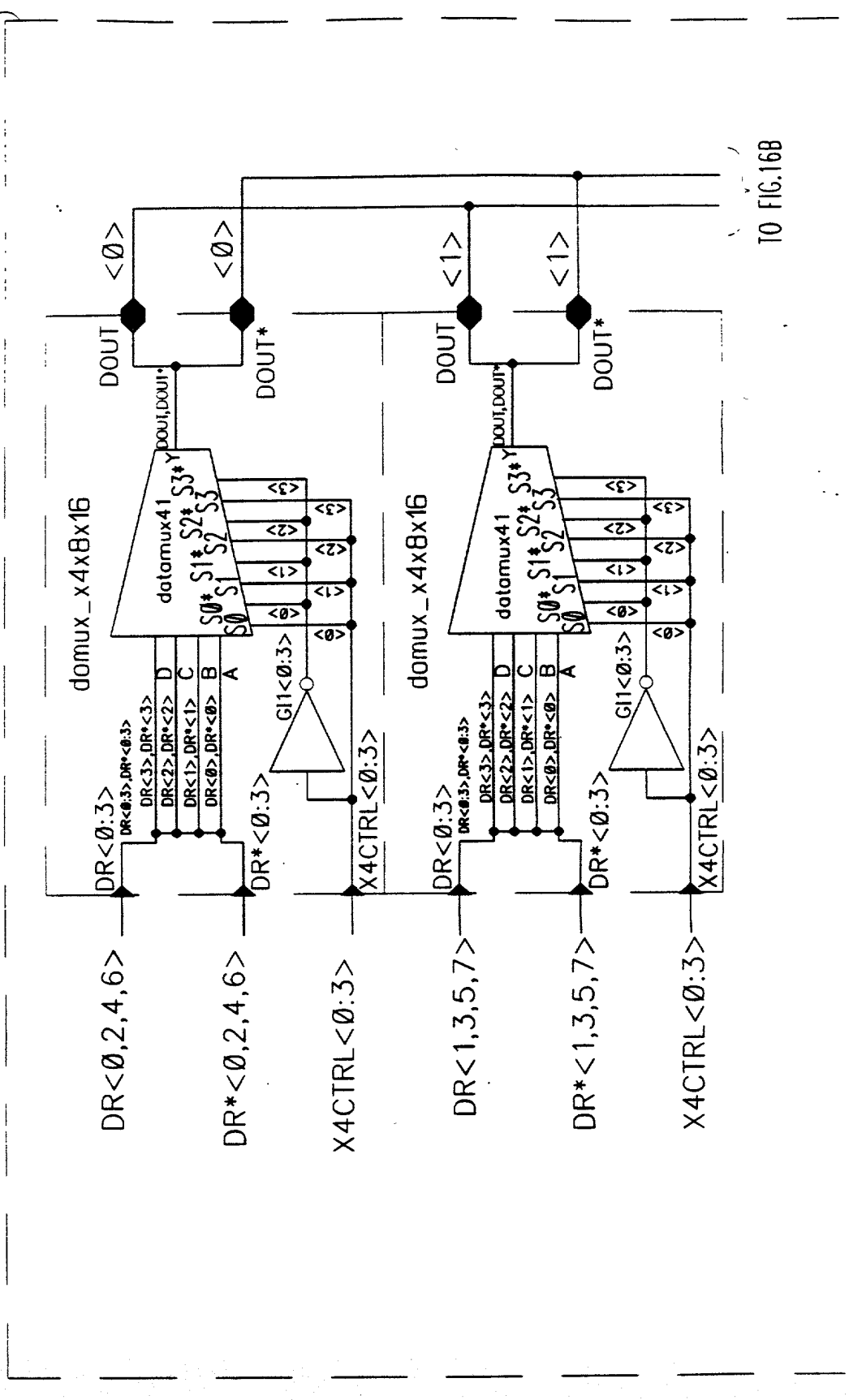


FIG. 15-2

FIG. 16A


108
domux_x4x8x16
datamux41
DOUT
DOUT*
DOUT,DOUT*
DR<Ø:3>
DR*<Ø:3>
X4CTRL<Ø:3>
GI1<Ø:3>
DR<Ø,2,4,6>
DR*<Ø,2,4,6>
X4CTRL<Ø:3>
DR<1,3,5,7>
DR*<1,3,5,7>
X4CTRL<Ø:3>
TO FIG.16B

Read Data			
LDQ<n>	X16	X8	X4
Ø	Ø	Ø,2	Ø,2,4,6
1	1	1,3	1,3,5,7
2	2		
3	3		
4	4		
5	5		
6	6	4,6	
7	7	5,7	

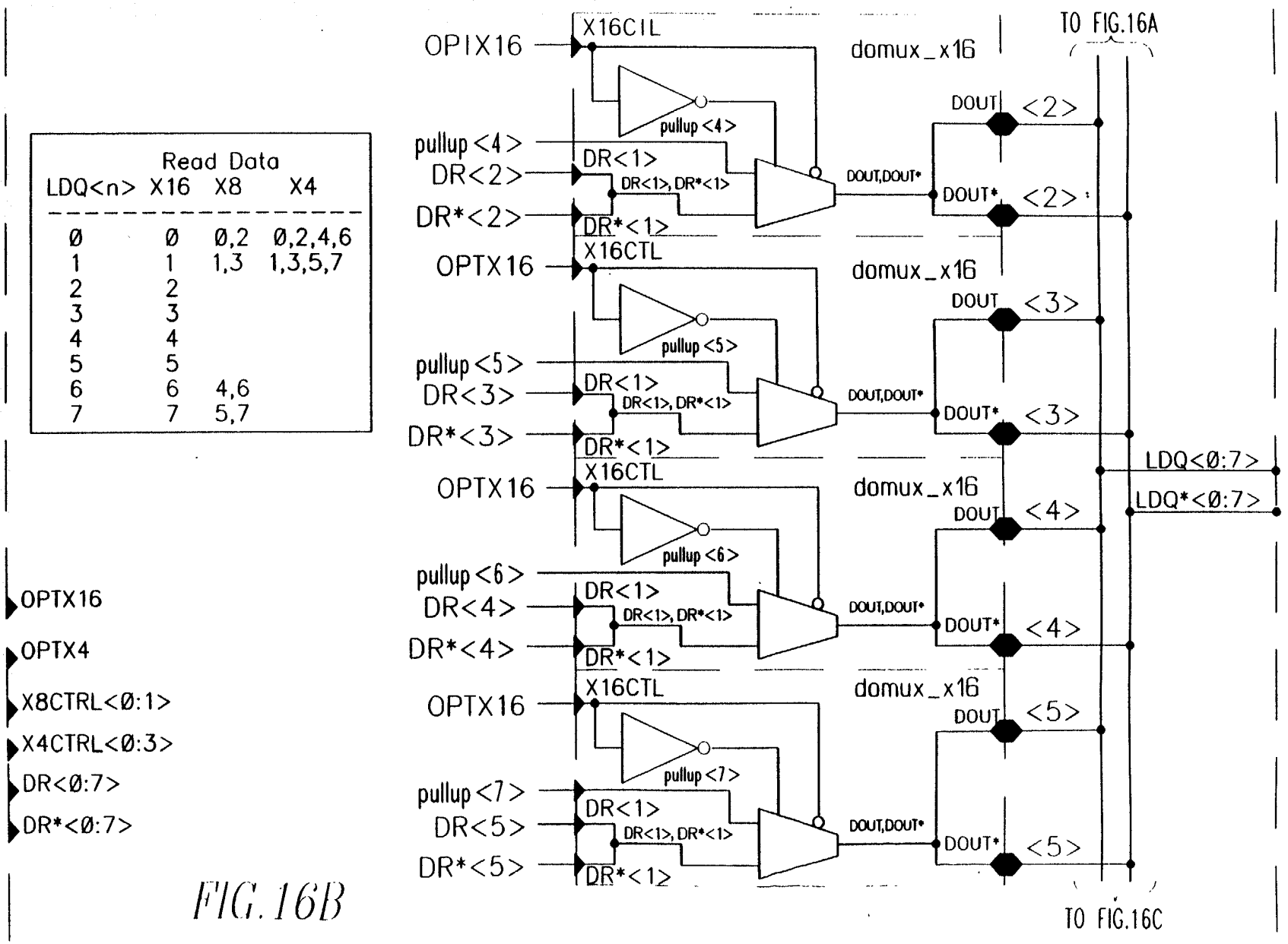


FIG. 16B

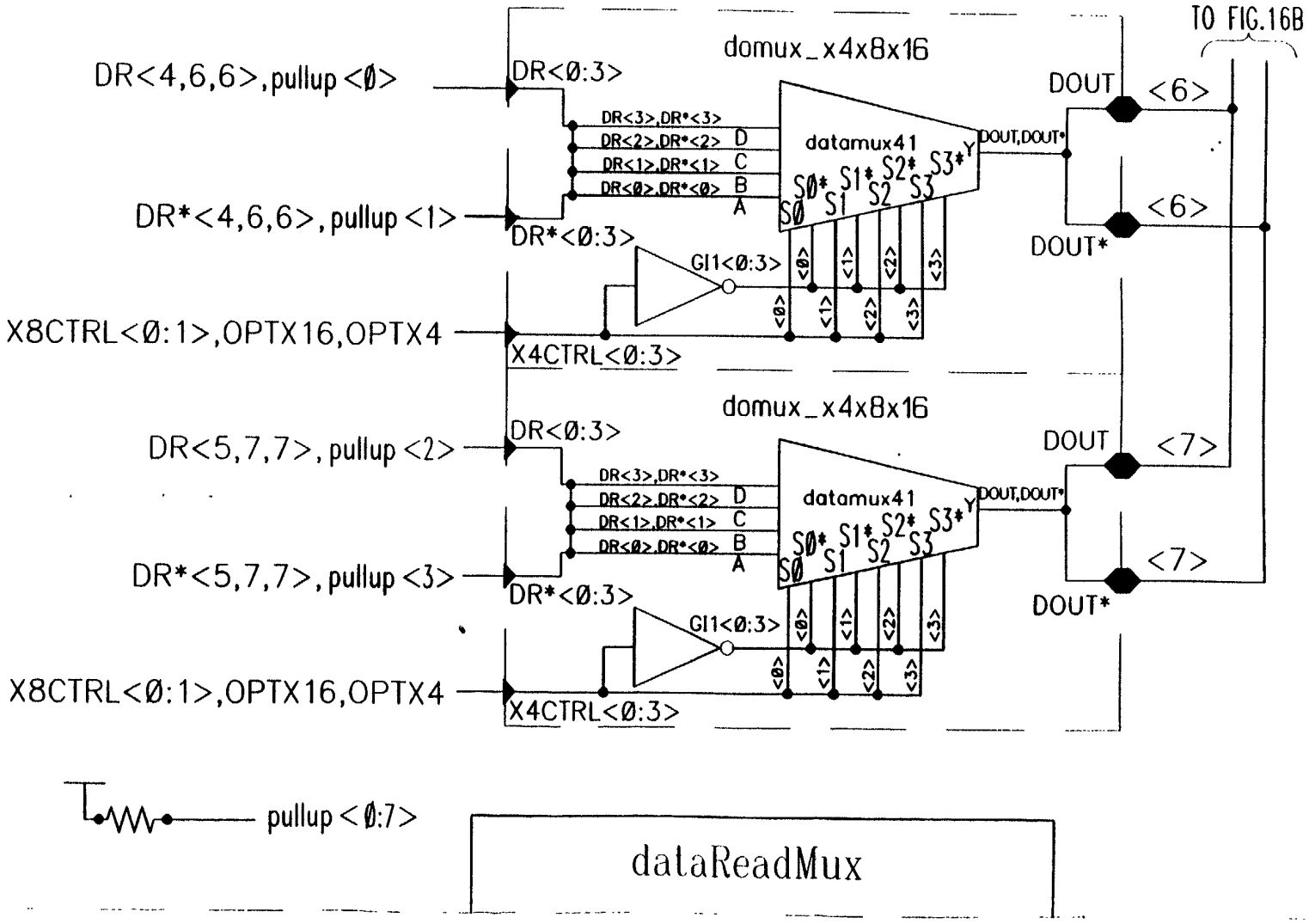

TO FIG.16B
domux_x4x8x16
DR<4,6,6>,pullup <0>
DR<0:3>
DR<3>,DR*<3>
DR<2>,DR*<2>
DR<1>,DR*<1>
DR<0>,DR*<0>
D
C
B
A
datamux41
S0* S1* S2* S3*
S0 S1 S2 S3
Y
DOUT,DOUT*
DOUT
<6>
DOUT*
<6>
DR*<4,6,6>,pullup <1>
DR*<0:3>
GI1<0:3>
<0>
<1>
<2>
<3>
X8CTRL<0:1>,OPTX16,OPTX4
X4CTRL<0:3>
domux_x4x8x16
DR<5,7,7>,pullup <2>
DR<0:3>
DR<3>,DR*<3>
DR<2>,DR*<2>
DR<1>,DR*<1>
DR<0>,DR*<0>
D
C
B
A
datamux41
S0* S1* S2* S3*
S0 S1 S2 S3
Y
DOUT,DOUT*
DOUT
<7>
DOUT*
<7>
DR*<5,7,7>,pullup <3>
DR*<0:3>
GI1<0:3>
<0>
<1>
<2>
<3>
X8CTRL<0:1>,OPTX16,OPTX4
X4CTRL<0:3>
pullup <0:7>
dataReadMux

FIG. 16C

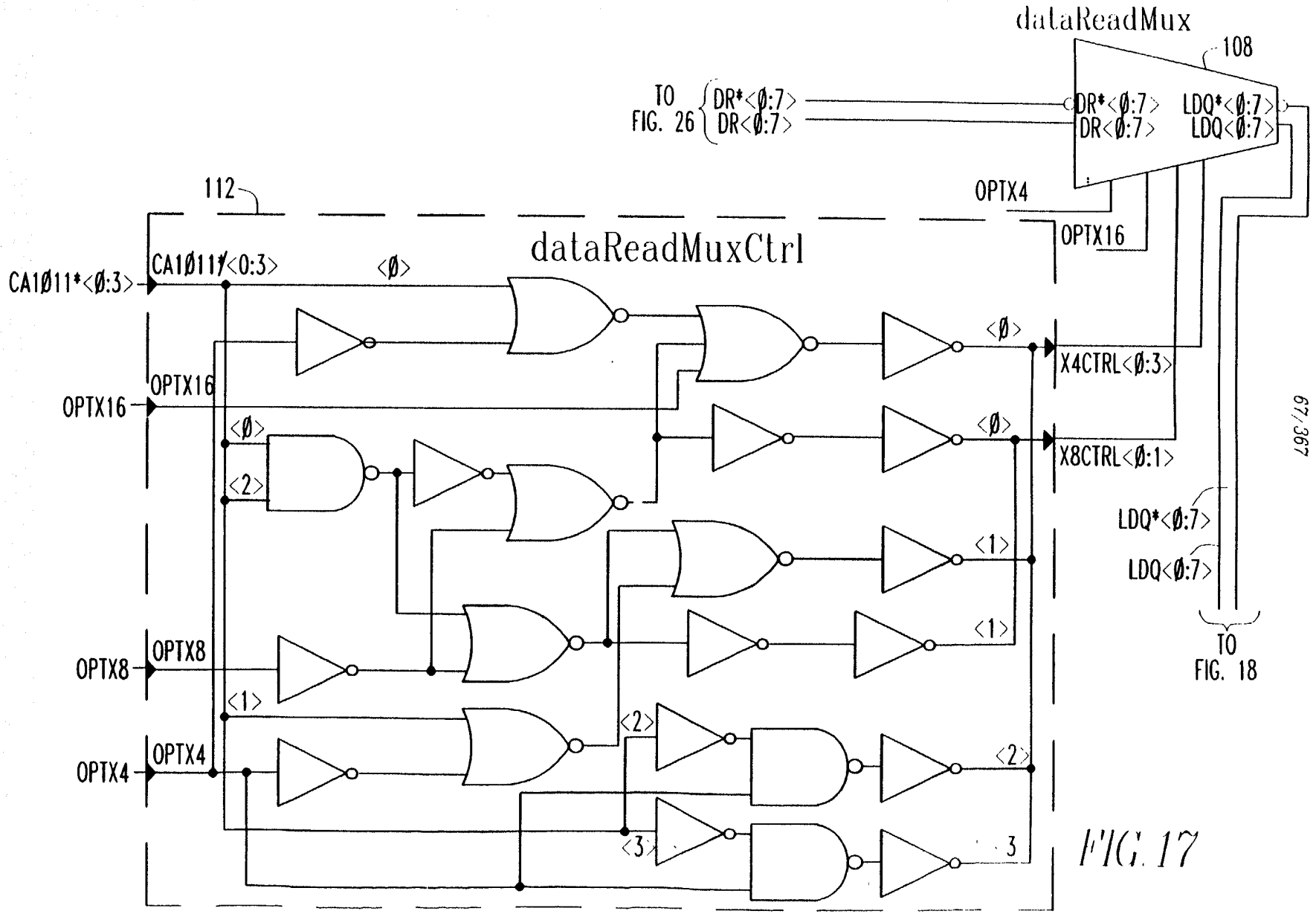

dataReadMux
108
TO FIG. 26
DR*<Ø:7>
DR<Ø:7>
DR*<Ø:7>
DR<Ø:7>
LDQ*<Ø:7>
LDQ<Ø:7>
112
dataReadMuxCtrl
OPTX4
OPTX16
CA1Ø11*<Ø:3>
CA1Ø11*<0:3>
<Ø>
OPTX16
<Ø>
<2>
<Ø>
X4CTRL<Ø:3>
<Ø>
X8CTRL<Ø:1>
LDQ*<Ø:7>
LDQ<Ø:7>
<1>
<1>
OPTX8
OPTX8
<1>
<2>
<2>
OPTX4
OPTX4
<3>
3
TO FIG. 18
67,367

FIG. 17

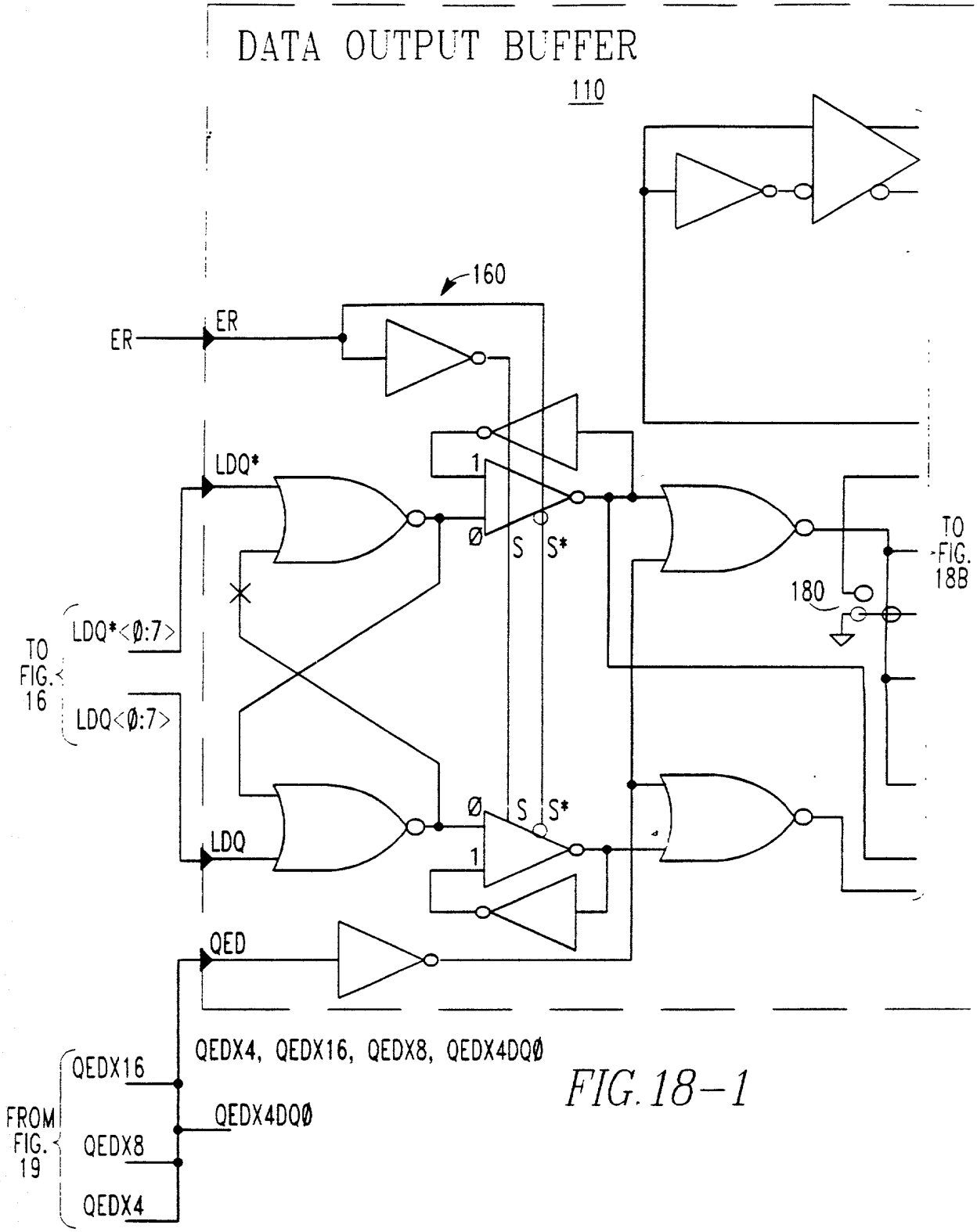

DATA OUTPUT BUFFER
110
160
ER
ER
LDQ*
1
Ø
S
S*
TO
FIG.
18B
180
TO
FIG.
16
LDQ*<Ø:7>
LDQ<Ø:7>
Ø
S
S*
LDQ
1
QED
QEDX4, QEDX16, QEDX8, QEDX4DQØ
QEDX16
QEDX4DQØ
FROM
FIG.
19
QEDX8
QEDX4

FIG. 18-1

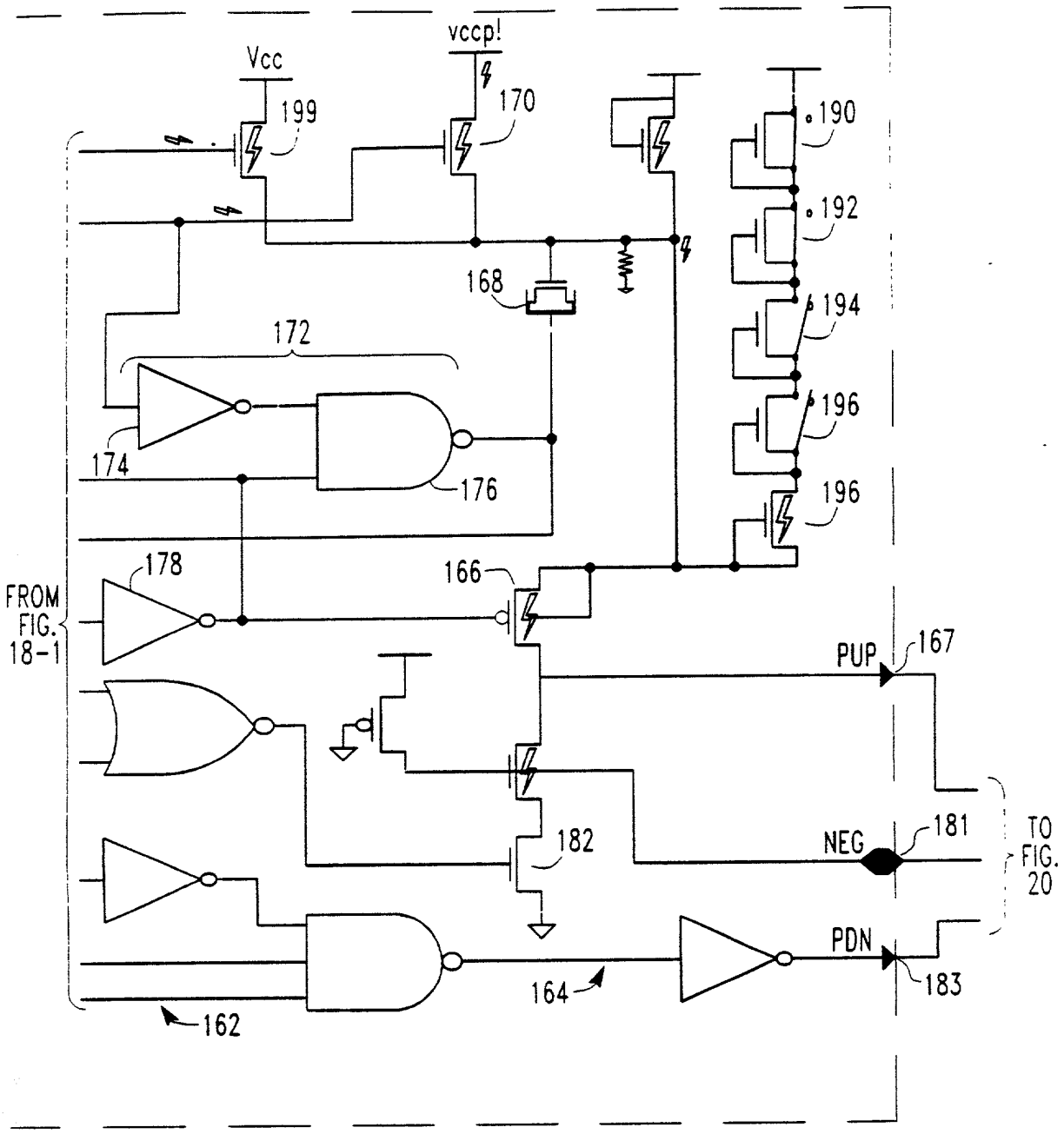

Vcc
vccp!
199
170
190
192
194
196
196
168
172
174
176
178
166
FROM FIG. 18-1
PUP
167
182
NEG
181
TO FIG. 20
PDN
183
164
162

FIG. 18-2

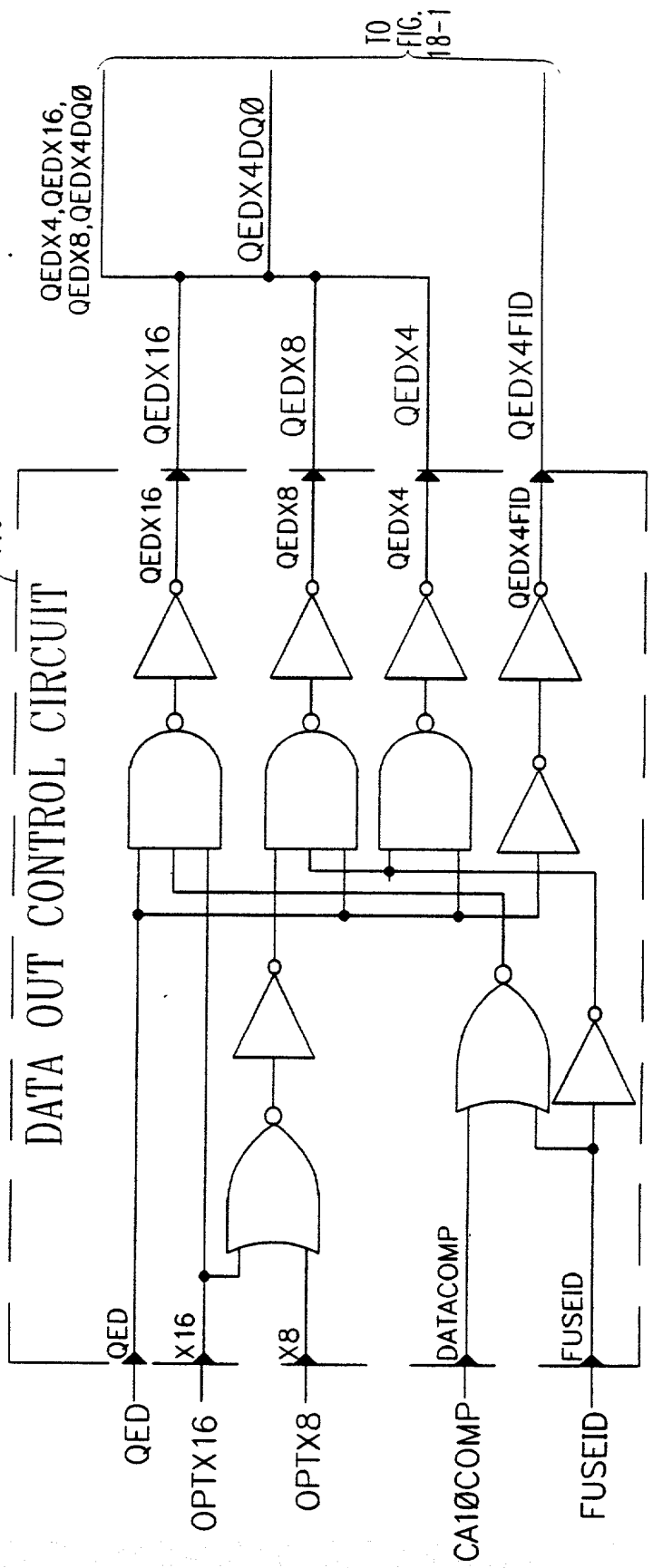

TO FIG. 18-1
QEDX4,QEDX16, QEDX8,QEDX4DQØ
QEDX4DQØ
QEDX16
QEDX8
QEDX4
QEDX4FID
116
DATA OUT CONTROL CIRCUIT
QEDX16
QEDX8
QEDX4
QEDX4FID
QED
X16
X8
DATACOMP
FUSEID
QED
OPTX16
OPTX8
CA1ØCOMP
FUSEID

FIG. 19

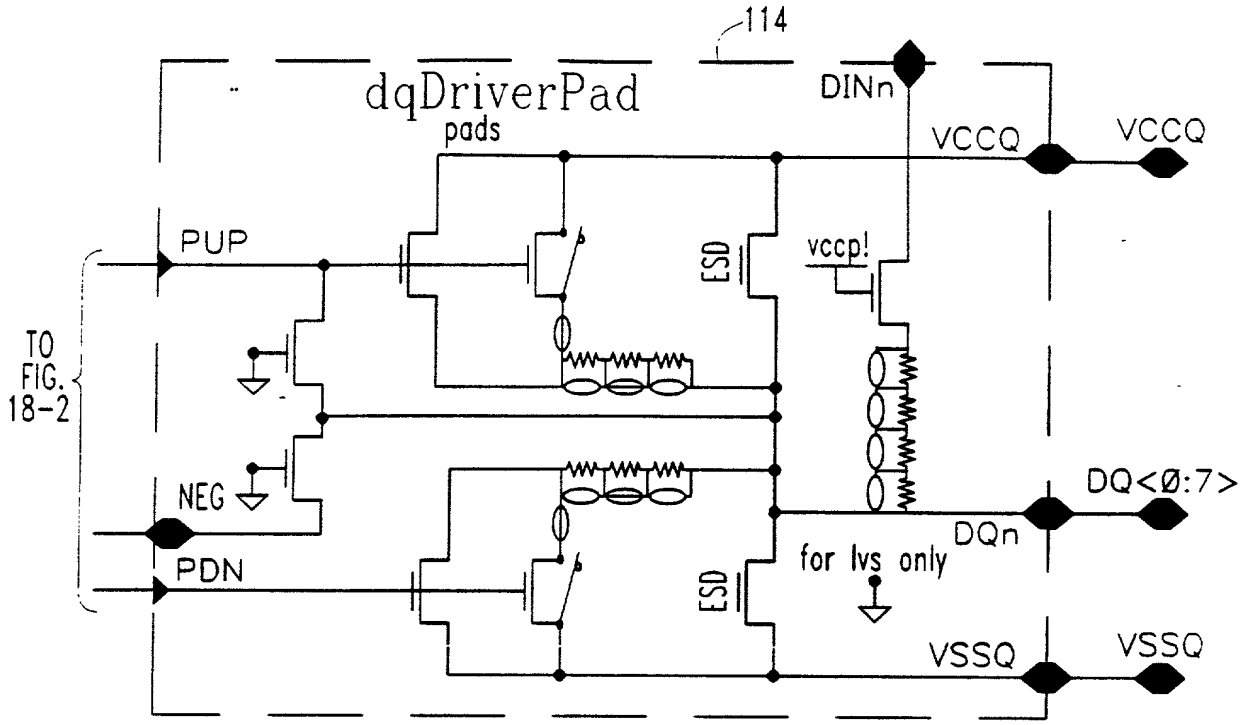

114
dqDriverPad
pads
DINn
VCCQ
VCCQ
PUP
ESD
vccp!
TO
FIG.
18-2
NEG
DQ<Ø:7>
DQn
PDN
for lvs only
ESD
VSSQ
VSSQ

FIG. 20

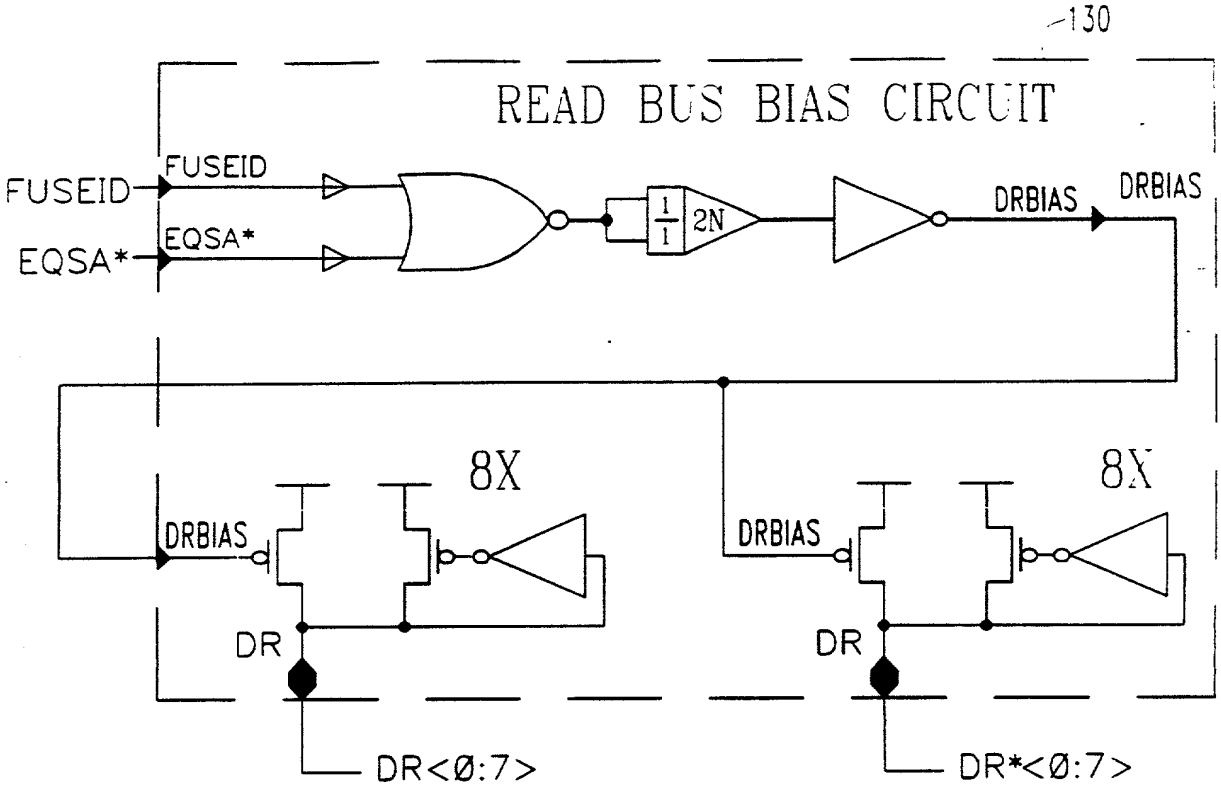

130
READ BUS BIAS CIRCUIT
FUSEID
FUSEID
EQSA*
EQSA*
1
1
2N
DRBIAS
DRBIAS
8X
8X
DRBIAS
DRBIAS
DR
DR
DR<Ø:7>
DR*<Ø:7>

FIG. 21

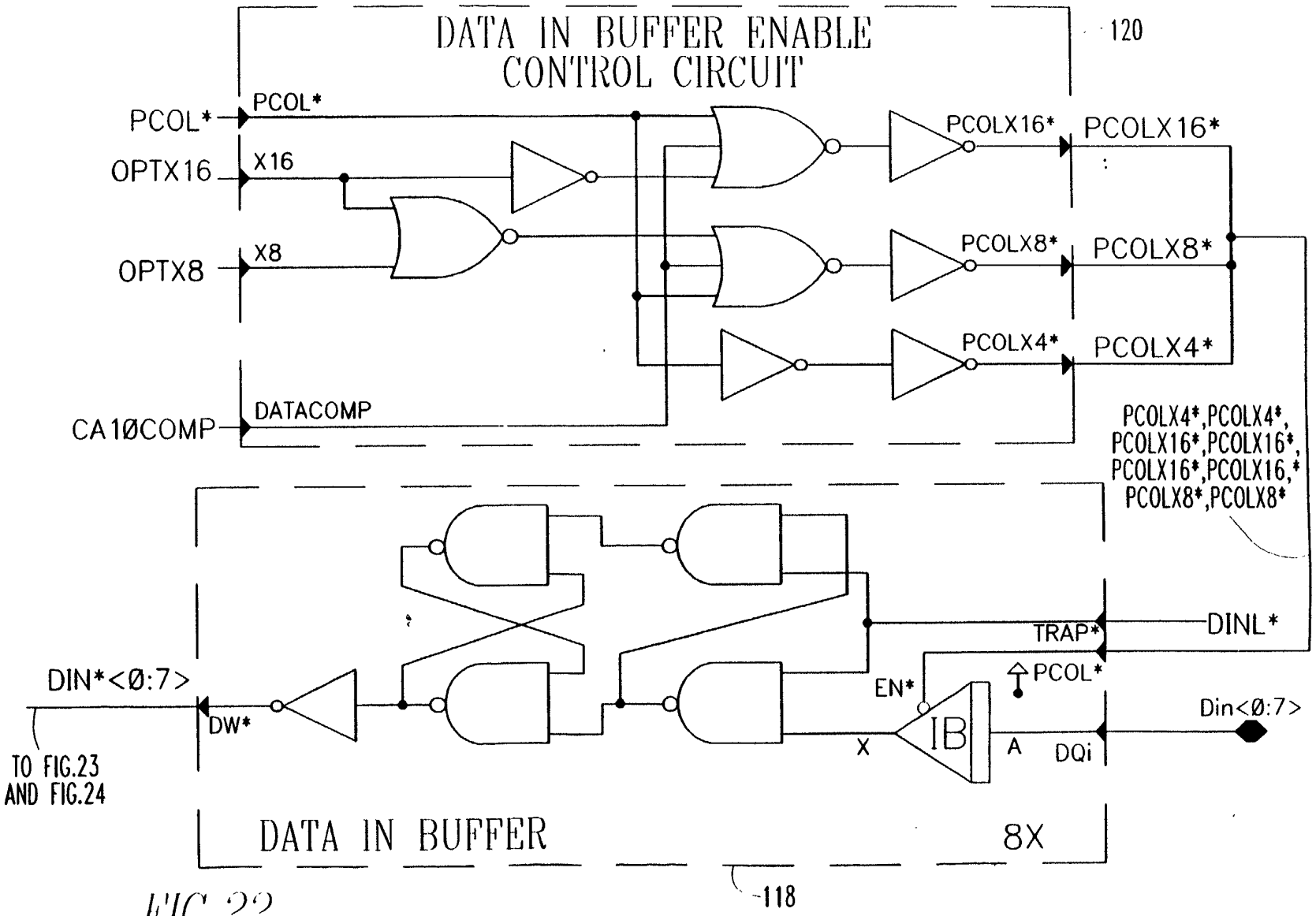
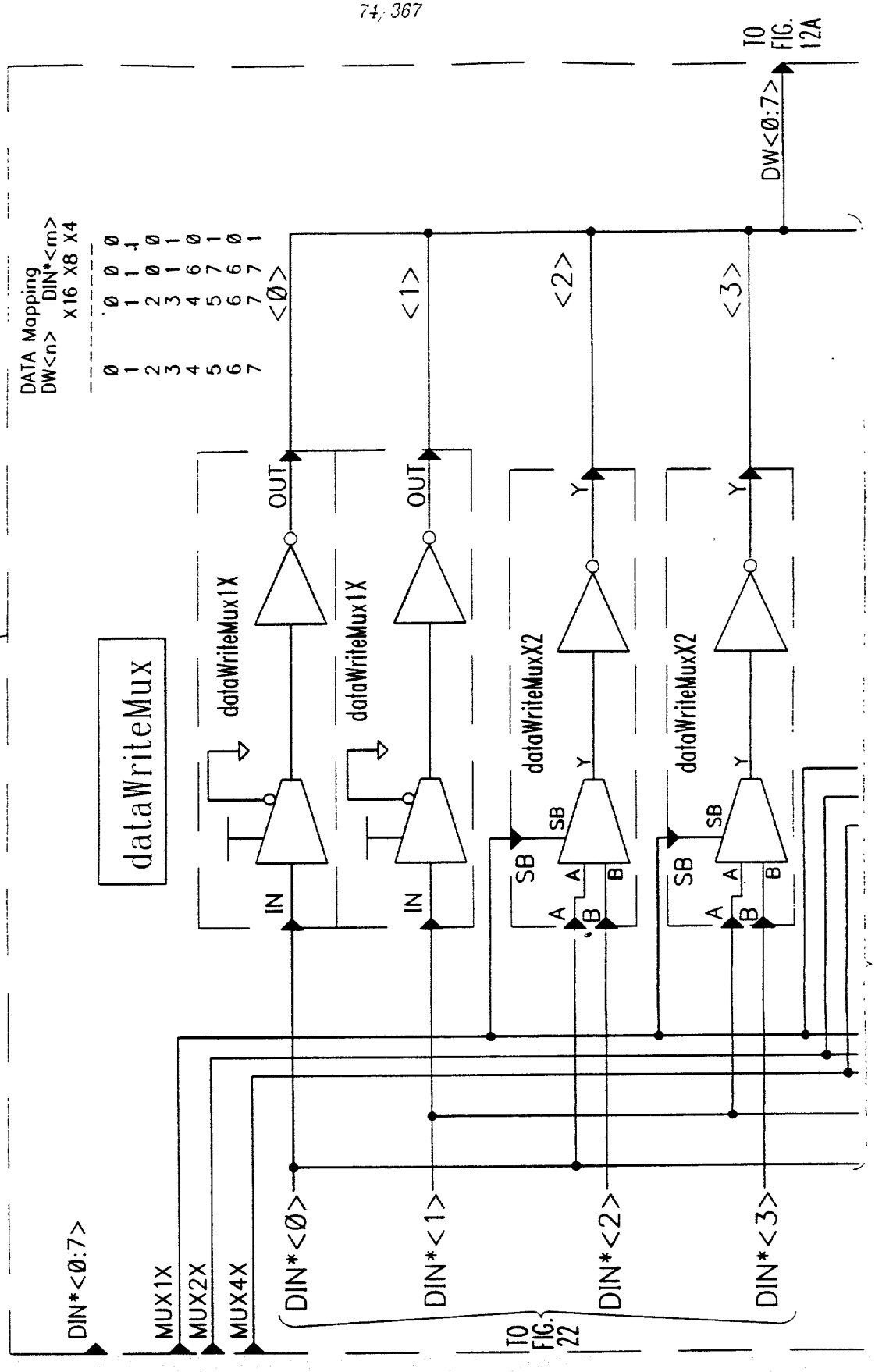

DATA IN BUFFER ENABLE
CONTROL CIRCUIT
120
PCOL*
OPTX16
X16
OPTX8
X8
CA1ØCOMP
DATACOMP
PCOLX16*
PCOLX16*
PCOLX8*
PCOLX8*
PCOLX4*
PCOLX4*
PCOLX4*,PCOLX4*,
PCOLX16*,PCOLX16*,
PCOLX16*,PCOLX16,*
PCOLX8*,PCOLX8*
TRAP*
DINL*
DIN*<Ø:7>
DW*
EN*
PCOL*
IB
X
A
DQi
Din<Ø:7>
TO FIG.23
AND FIG.24
DATA IN BUFFER
8X
118

FIG.22

73,367

FIG. 23-1


DATA Mapping
DW<n> DIN*<m>
X16 X8 X4
0 0 0 0 0
1 1 1 1
2 2 0 0 0
3 3 1 1
4 4 6 0
5 5 7 1
6 6 6 0
7 7 7 1
<0>
<1>
<2>
<3>
122
dataWriteMux
dataWriteMux1X
dataWriteMux1X
dataWriteMuxX2
dataWriteMuxX2
OUT
IN
SB
A
B
Y
DIN*<0:7>
MUX1X
MUX2X
MUX4X
DIN*<0>
DIN*<1>
DIN*<2>
DIN*<3>
DW<0:7>
TO FIG. 12A
TO FIG. 22
TO FIG.23-2

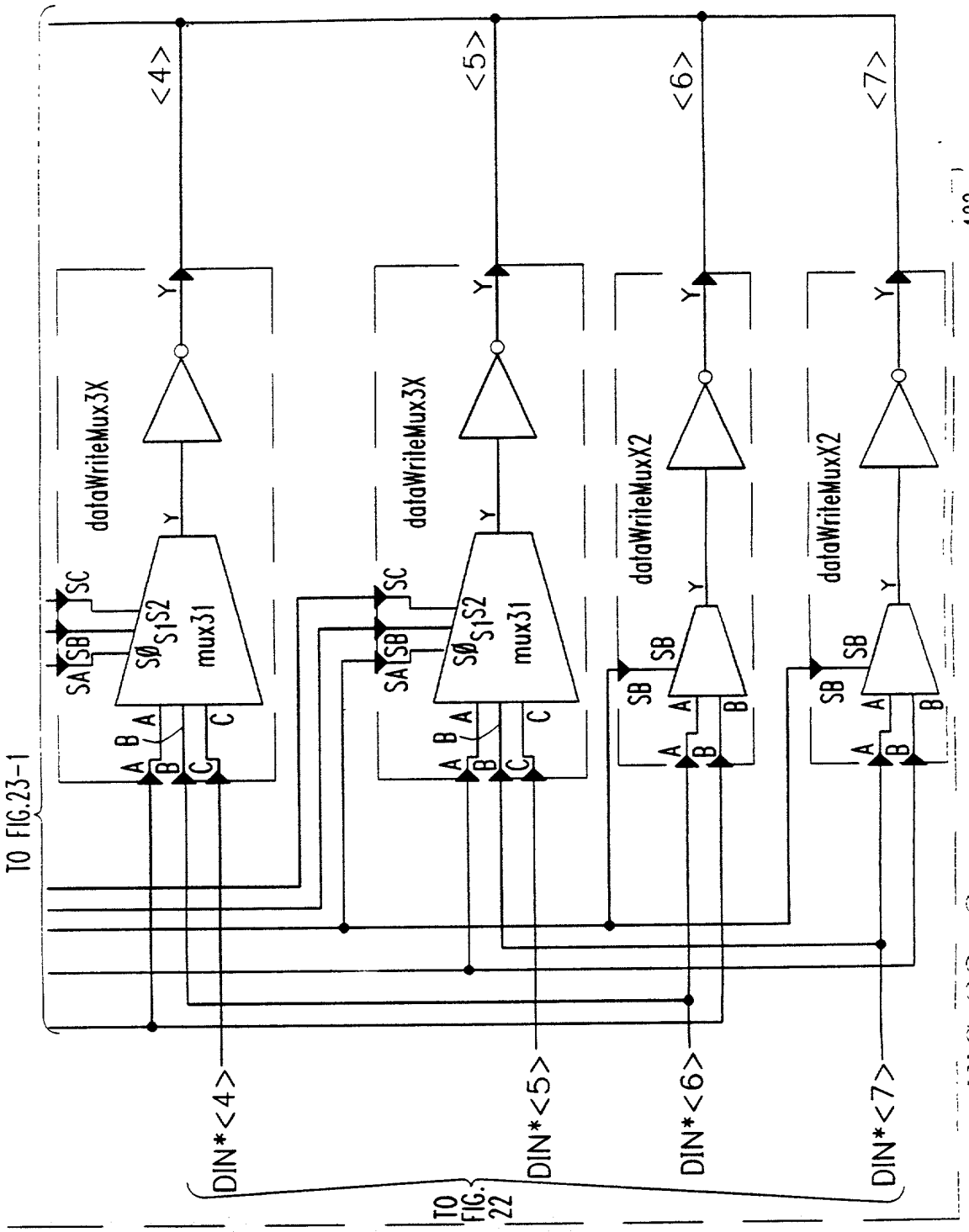

TO FIG.23-1
<4>
<5>
<6>
<7>
dataWriteMux3X
dataWriteMux3X
dataWriteMuxX2
dataWriteMuxX2
SC
SB
SA
S1S2
mux31
A
B
C
Y
DIN*<4>
DIN*<5>
DIN*<6>
DIN*<7>
TO FIG. 22
122

FIG. 23-2

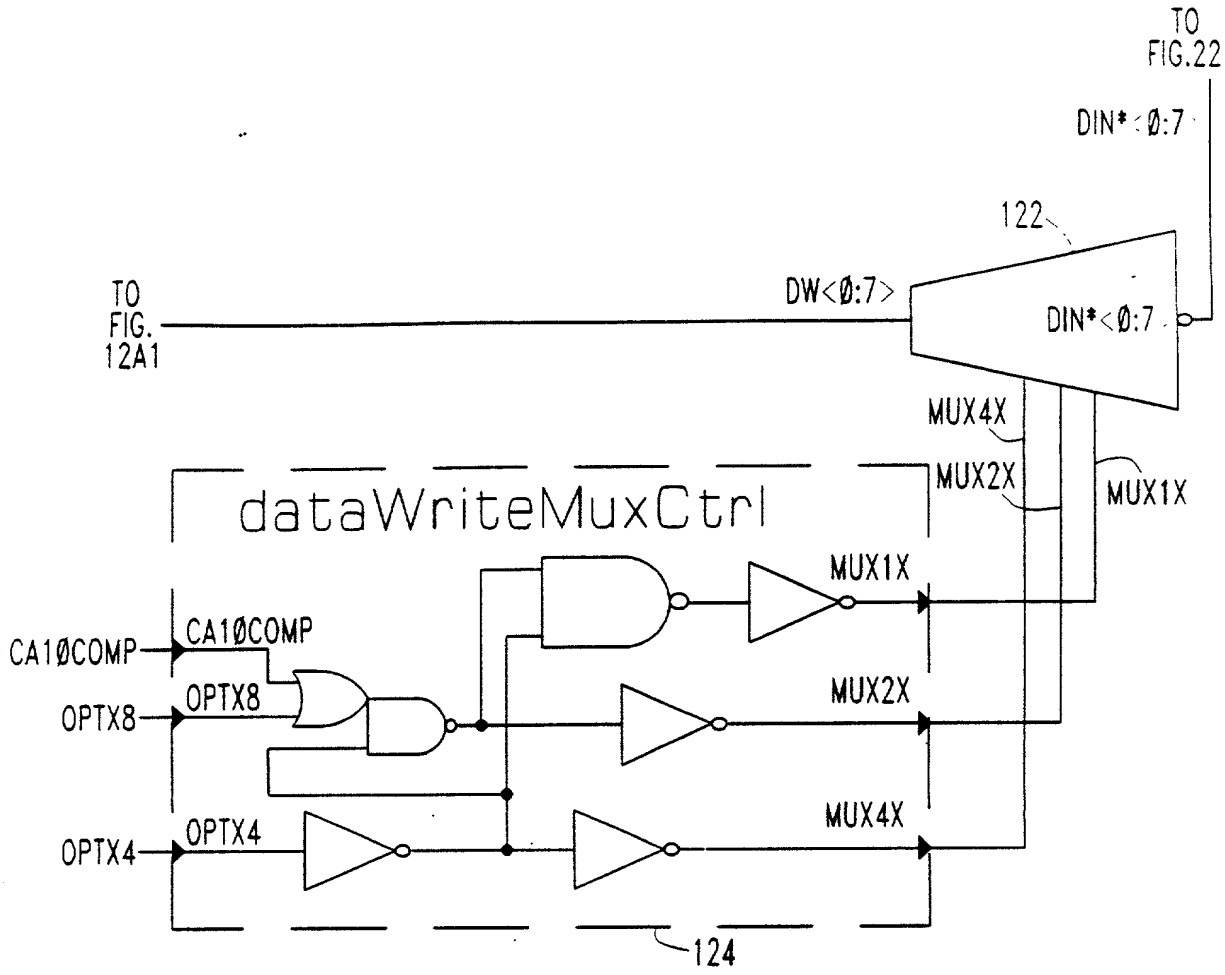

TO
FIG.22
DIN*<Ø:7>
122
TO
FIG.
12A1
DW<Ø:7>
DIN*<Ø:7>
MUX4X
MUX2X
MUX1X
dataWriteMuxCtrl
MUX1X
CA1ØCOMP
CA1ØCOMP
OPTX8
OPTX8
MUX2X
OPTX4
OPTX4
MUX4X
124

FIG. 24

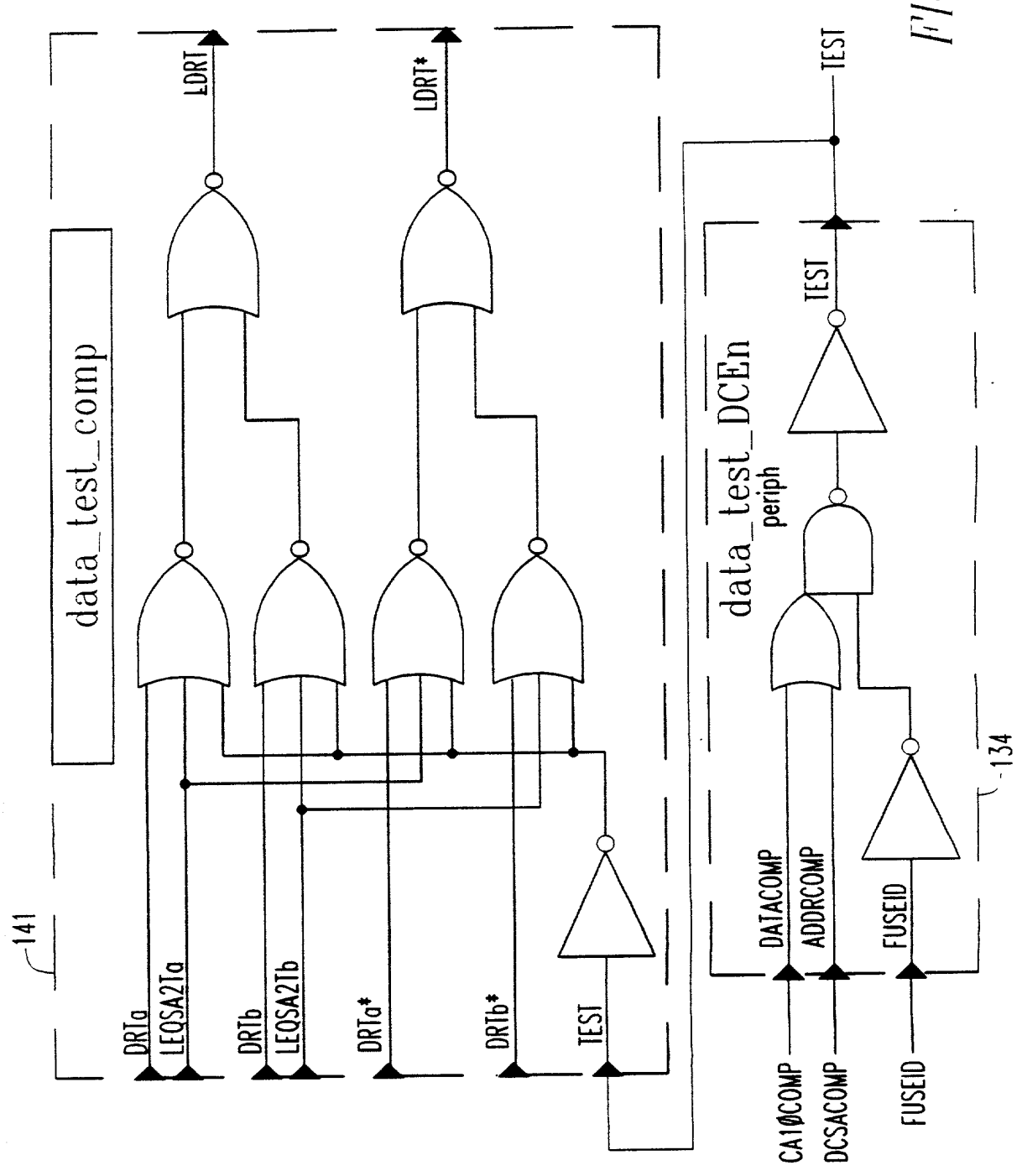

141
data_test_comp
DRTa
LEQSA2Ta
DRTb
LEQSA2Tb
DRTa*
DRTb*
TEST
LDRT
LDRT*
data_test_DCEn
periph
DATACOMP
ADDRCOMP
FUSEID
TEST
TEST
CA1ØCOMP
DCSACOMP
FUSEID
134

FIG.25

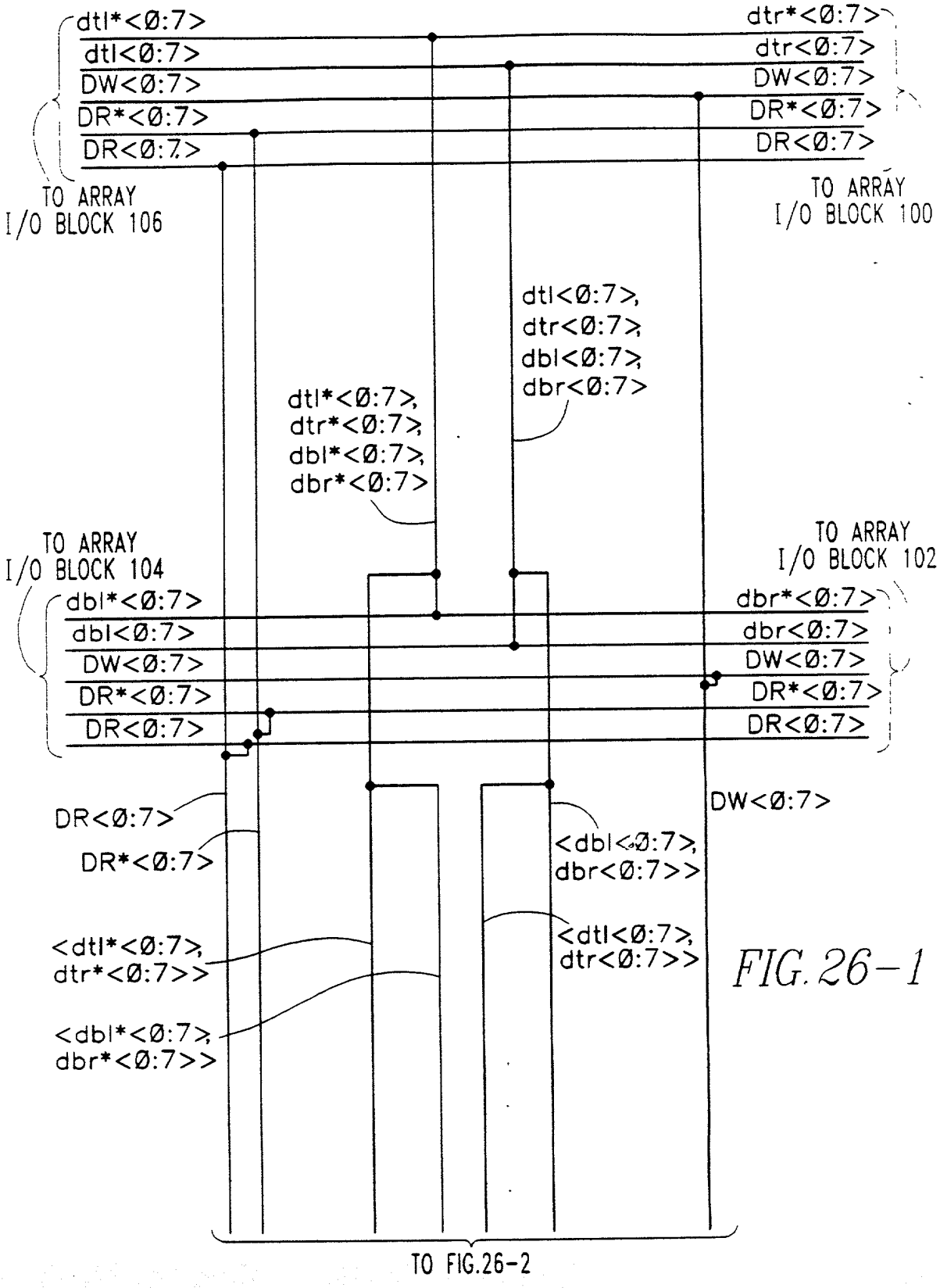

dtl*<Ø:7>
dtl<Ø:7>
DW<Ø:7>
DR*<Ø:7>
DR<Ø:7>
TO ARRAY I/O BLOCK 106
dtr*<Ø:7>
dtr<Ø:7>
DW<Ø:7>
DR*<Ø:7>
DR<Ø:7>
TO ARRAY I/O BLOCK 100
dtl<Ø:7>, dtr<Ø:7>, dbl<Ø:7>, dbr<Ø:7>
dtl*<Ø:7>, dtr*<Ø:7>, dbl*<Ø:7>, dbr*<Ø:7>
TO ARRAY I/O BLOCK 104
dbl*<Ø:7>
dbl<Ø:7>
DW<Ø:7>
DR*<Ø:7>
DR<Ø:7>
TO ARRAY I/O BLOCK 102
dbr*<Ø:7>
dbr<Ø:7>
DW<Ø:7>
DR*<Ø:7>
DR<Ø:7>
DR<Ø:7>
DR*<Ø:7>
<dtl*<Ø:7>, dtr*<Ø:7>>
<dbl*<Ø:7>, dbr*<Ø:7>>
DW<Ø:7>
<dbl<Ø:7>, dbr<Ø:7>>
<dtl<Ø:7>, dtr<Ø:7>>
TO FIG.26-2

FIG. 26-1

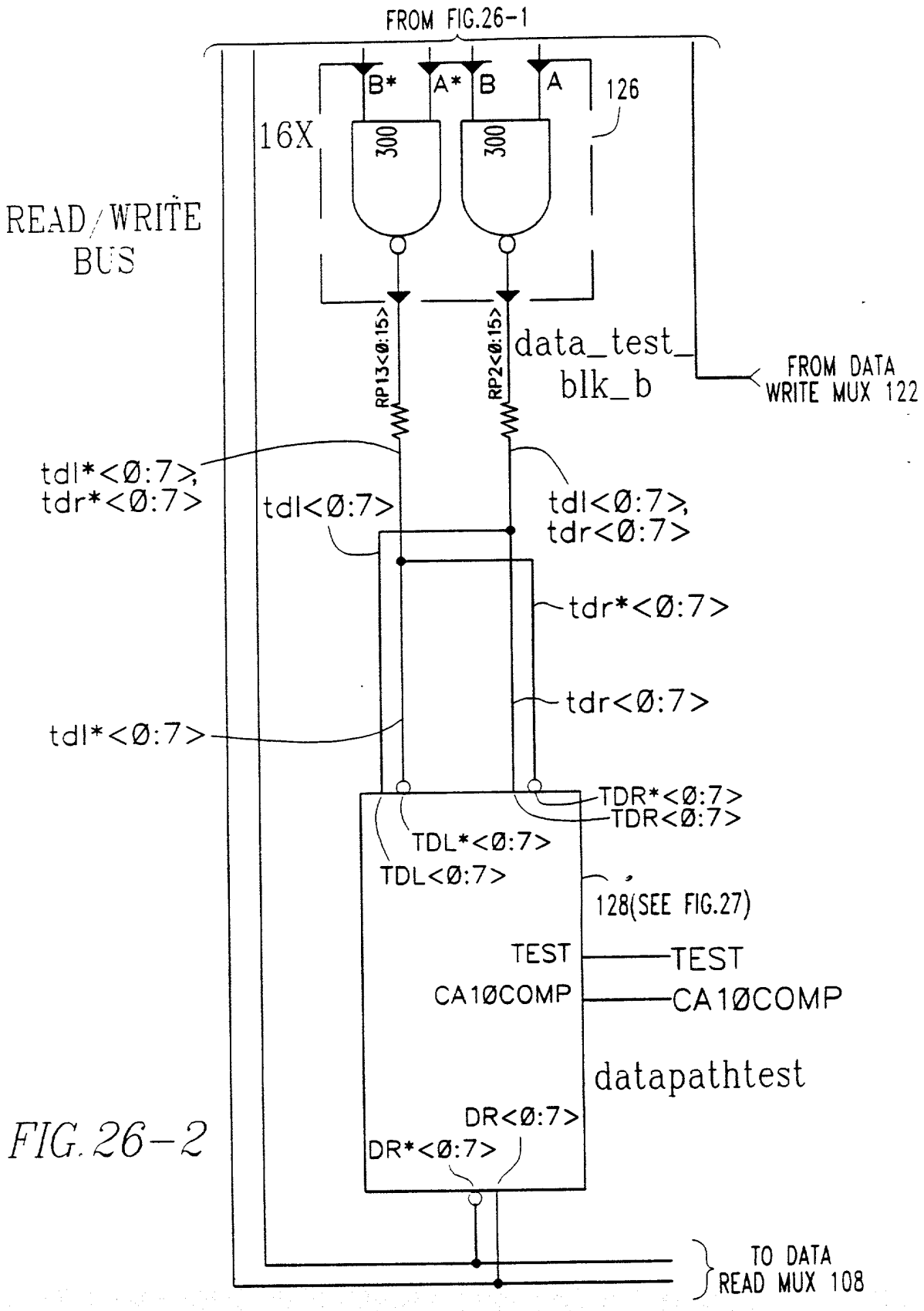

FROM FIG.26-1
B*
A*
B
A
126
16X
300
300
READ/WRITE BUS
RP13<Ø:15>
RP2<Ø:15>
data_test_blk_b
FROM DATA WRITE MUX 122
tdl*<Ø:7>, tdr*<Ø:7>
tdl<Ø:7>
tdl<Ø:7>, tdr<Ø:7>
tdr*<Ø:7>
tdr<Ø:7>
tdl*<Ø:7>
TDR*<Ø:7>
TDR<Ø:7>
TDL*<Ø:7>
TDL<Ø:7>
128(SEE FIG.27)
TEST
TEST
CA1ØCOMP
CA1ØCOMP
datapathtest
DR<Ø:7>
DR*<Ø:7>
TO DATA READ MUX 108

FIG. 26-2

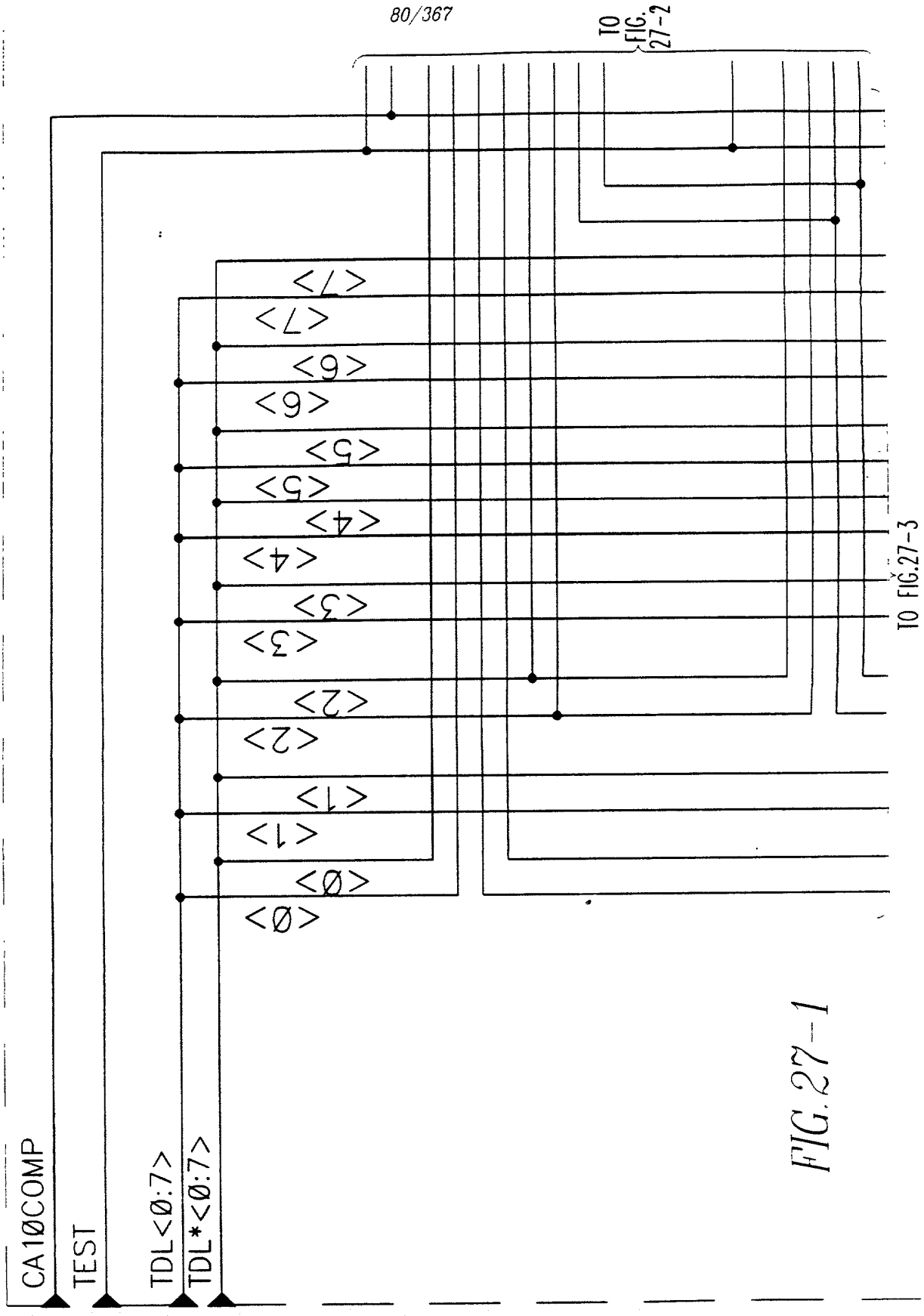
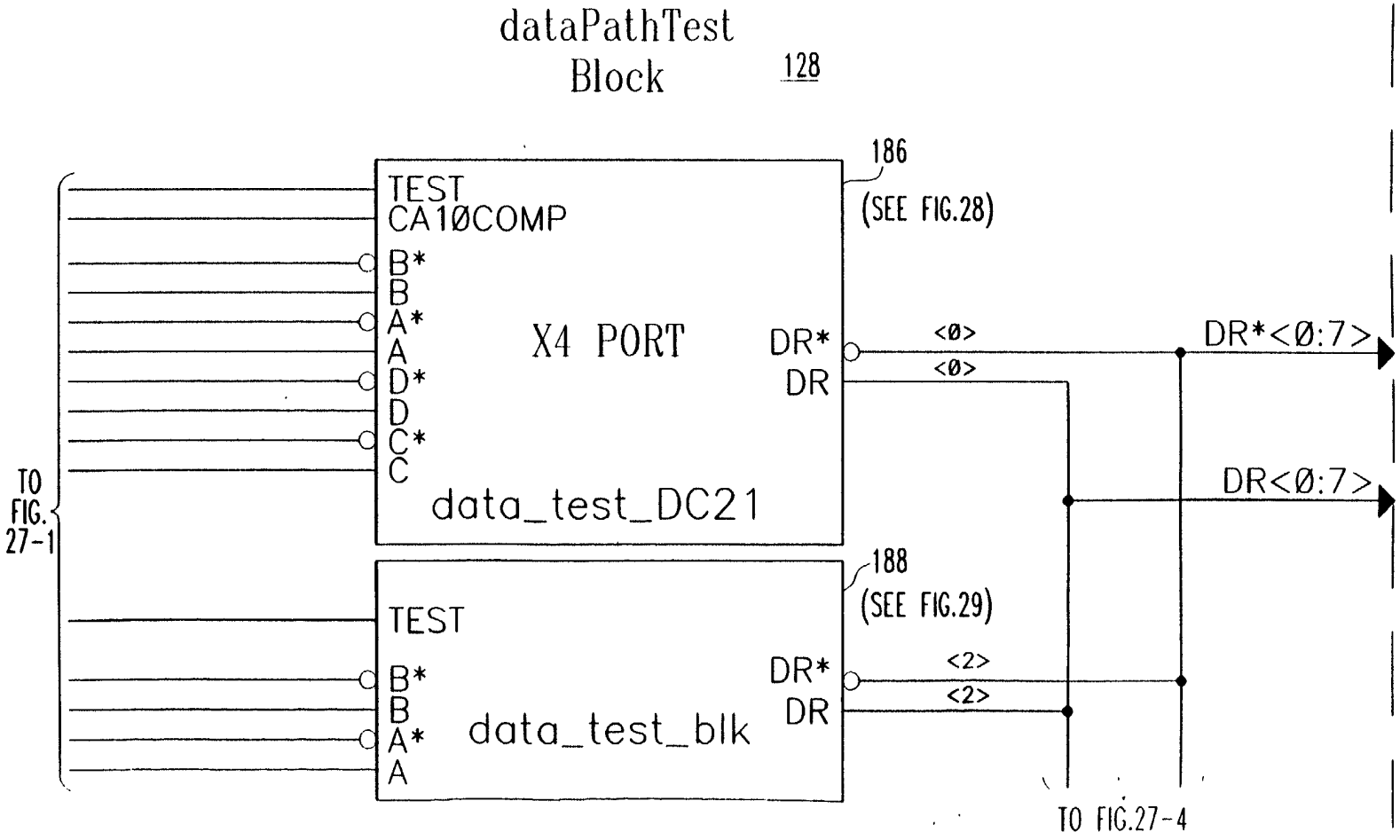

TO FIG. 27-2
CA1ØCOMP
TEST
TDL<Ø:7>
TDL*<Ø:7>
<7>
<7>
<6>
<6>
<5>
<5>
<4>
<4>
<3>
<3>
<2>
<2>
<1>
<1>
<Ø>
<Ø>
TO FIG.27-3

FIG. 27-1

FIG. 27-2



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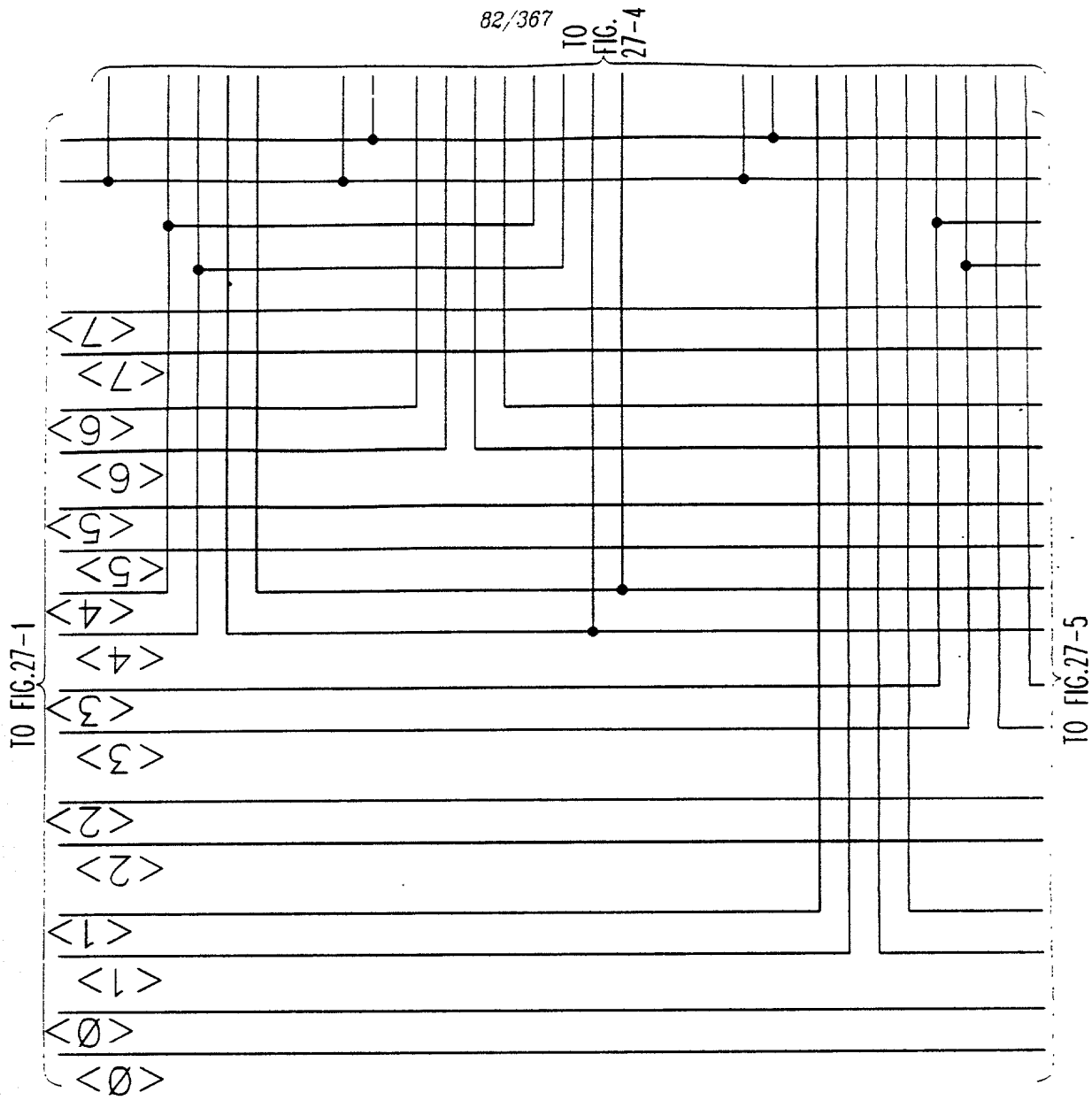


FIG. 27-3

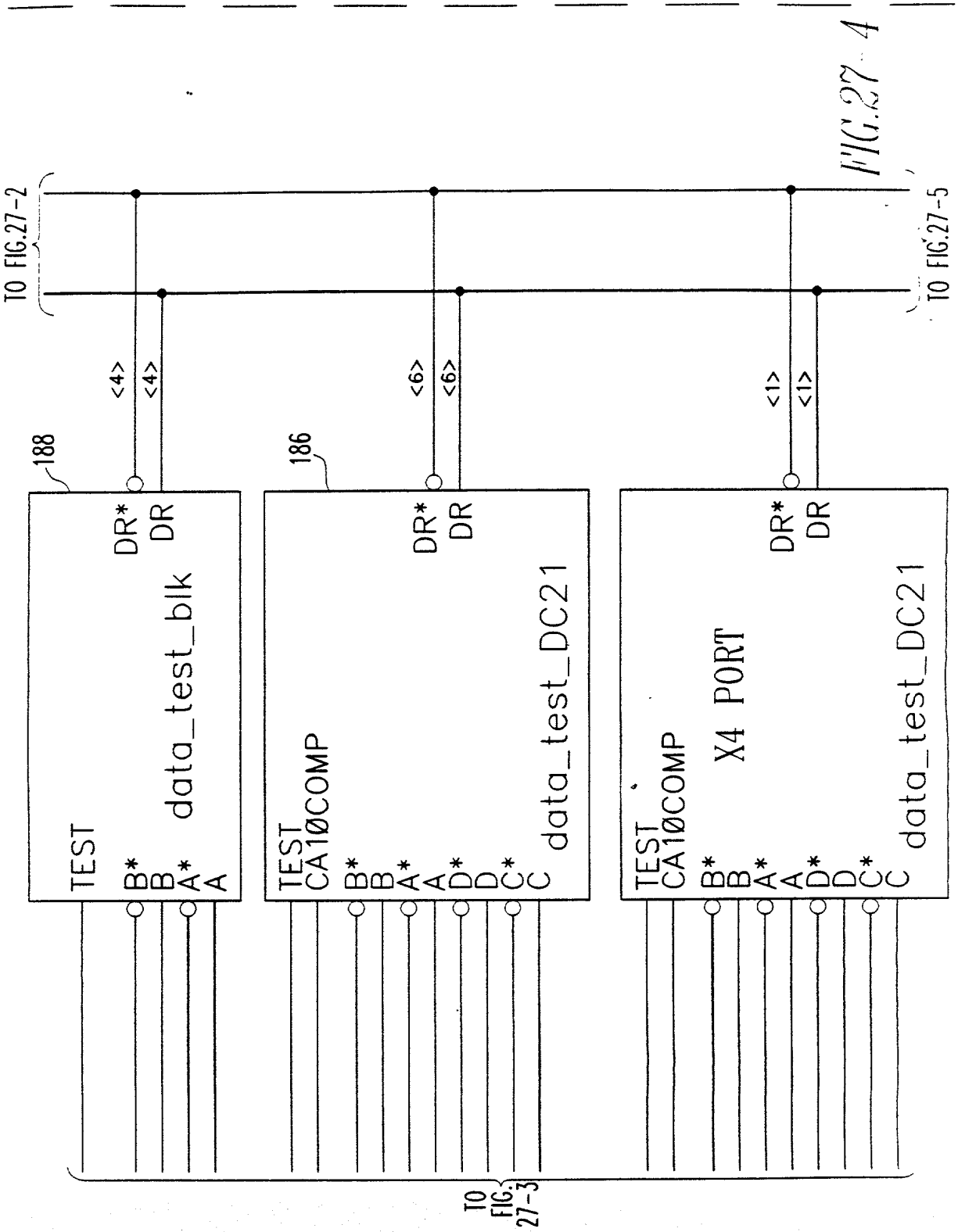
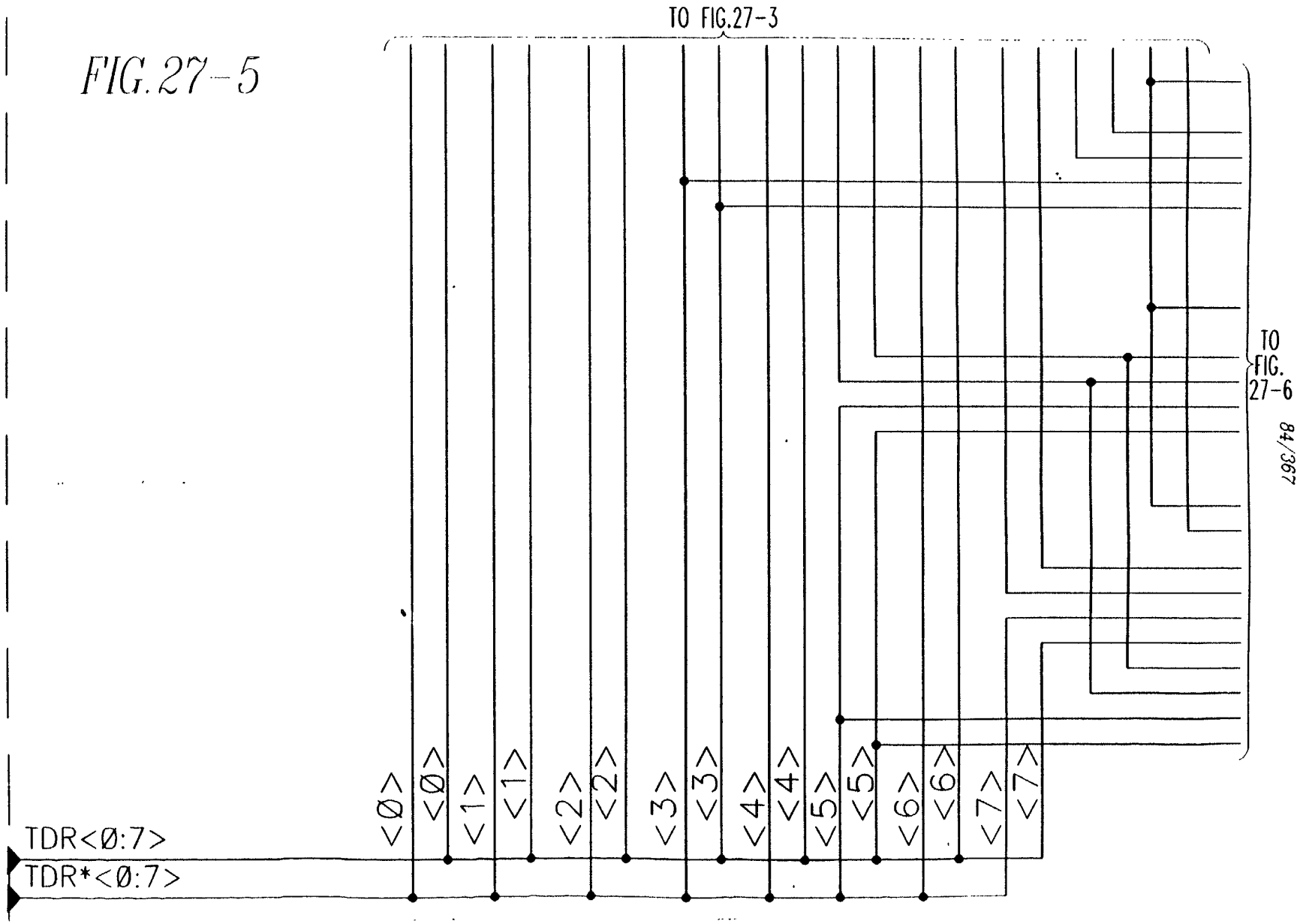

TO FIG.27-2
TO FIG.27-5
<4>
<4>
<6>
<6>
<1>
<1>
188
186
DR*
DR
DR*
DR
DR*
DR
TEST
B*
B
A*
A
data_test_blk
TEST
CA1ØCOMP
B*
B
A*
A
D*
D
C*
C
data_test_DC21
TEST
CA1ØCOMP
X4 PORT
B*
B
A*
A
D*
D
C*
C
data_test_DC21
TO FIG. 27-3

FIG. 27-4

FIG. 27-5



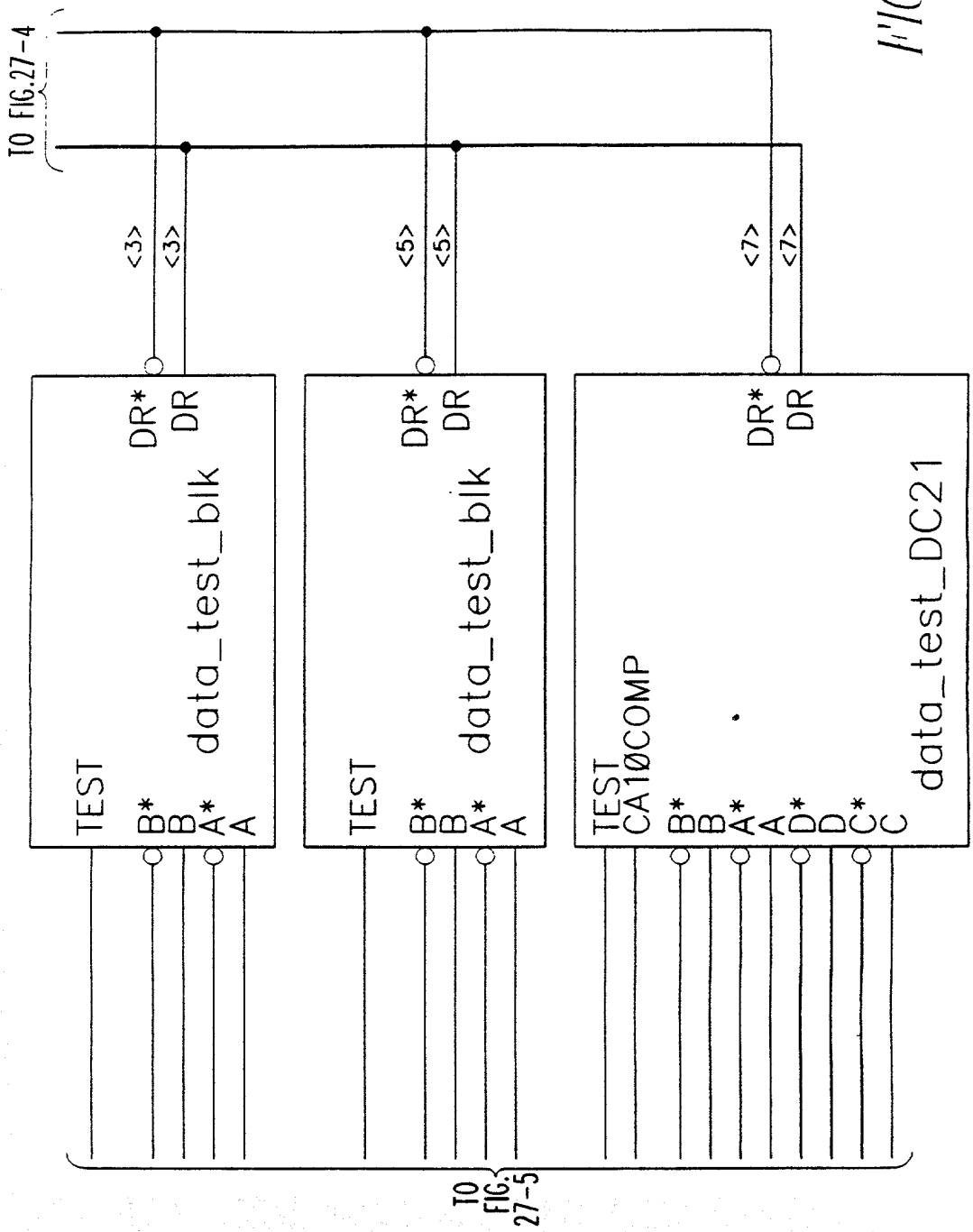

TO FIG.27-4
<3>
<3>
<5>
<5>
<7>
<7>
DR*
DR
DR*
DR
DR*
DR
TEST
B*
B
A*
A
data_test_blk
TEST
B*
B
A*
A
data_test_blk
TEST
CA10COMP
B*
B
A*
A
D*
D
C*
C
data_test_DC21
TO FIG. 27-5

FIG. 27-6

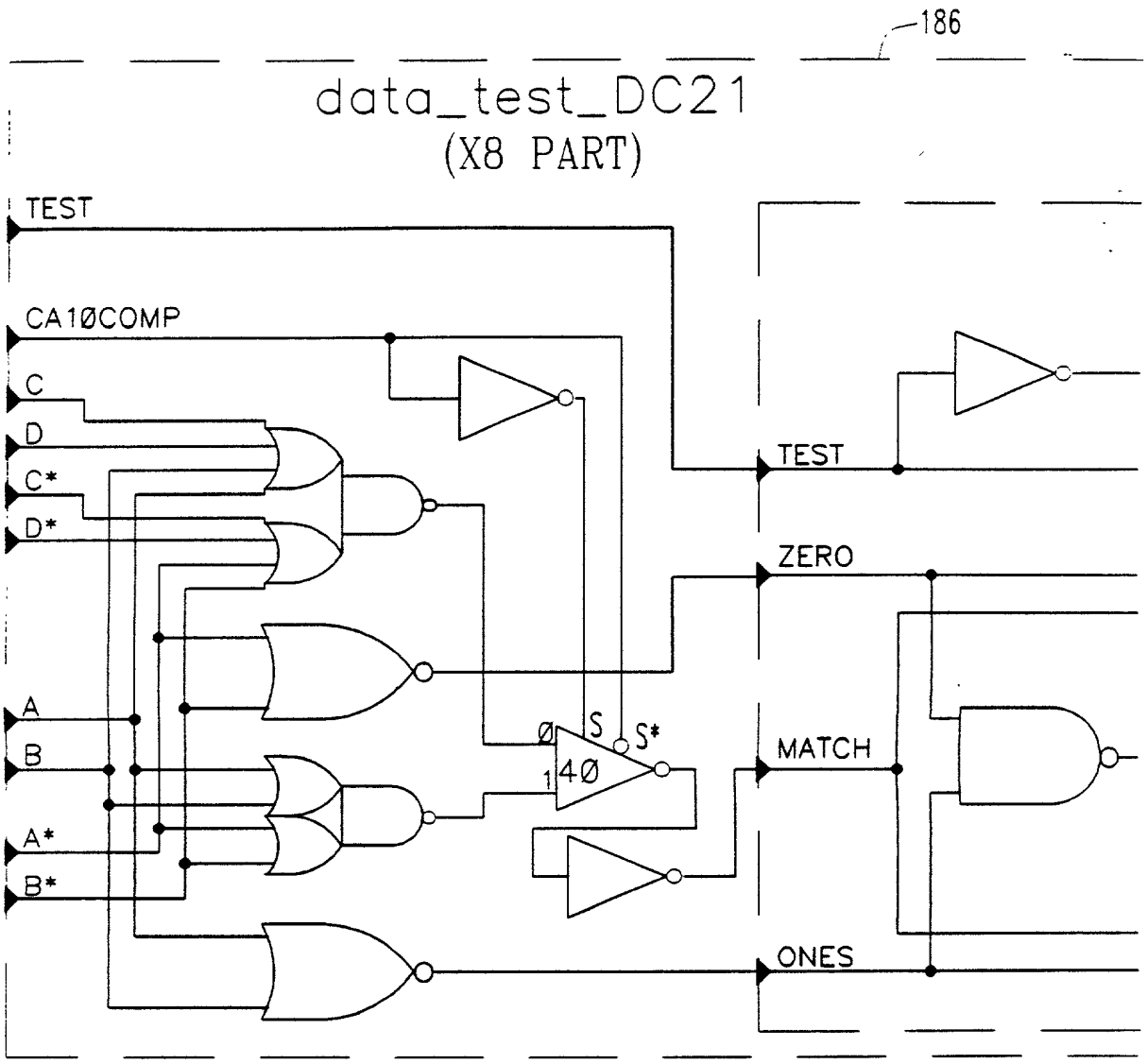

186
data_test_DC21
(X8 PART)
TEST
CA1ØCOMP
C
D
C*
D*
A
B
A*
B*
TEST
ZERO
MATCH
ONES
Ø
S
S*
1
4Ø

FIG. 28-1

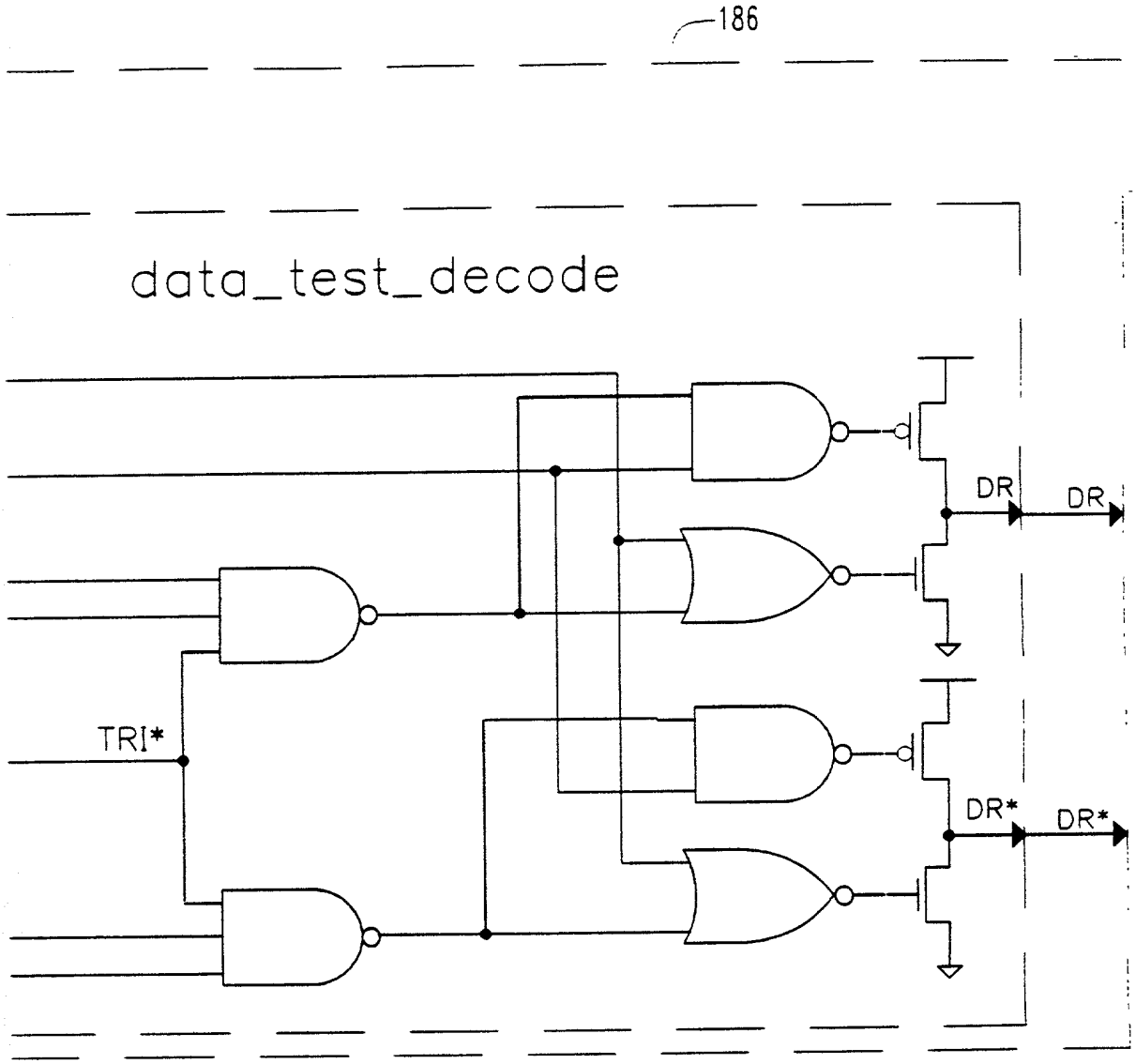


FIG. 28-2

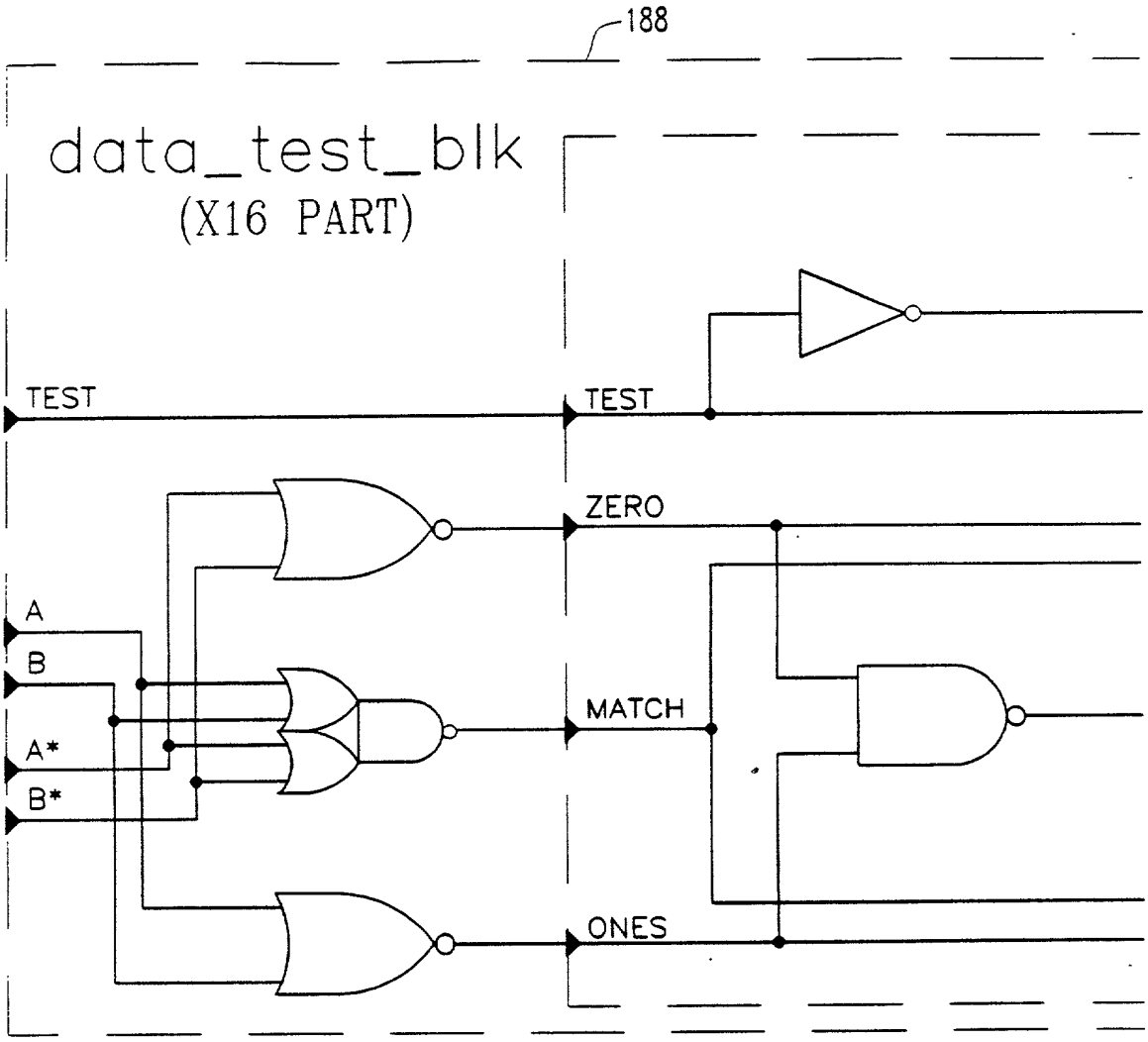


FIG. 29-1

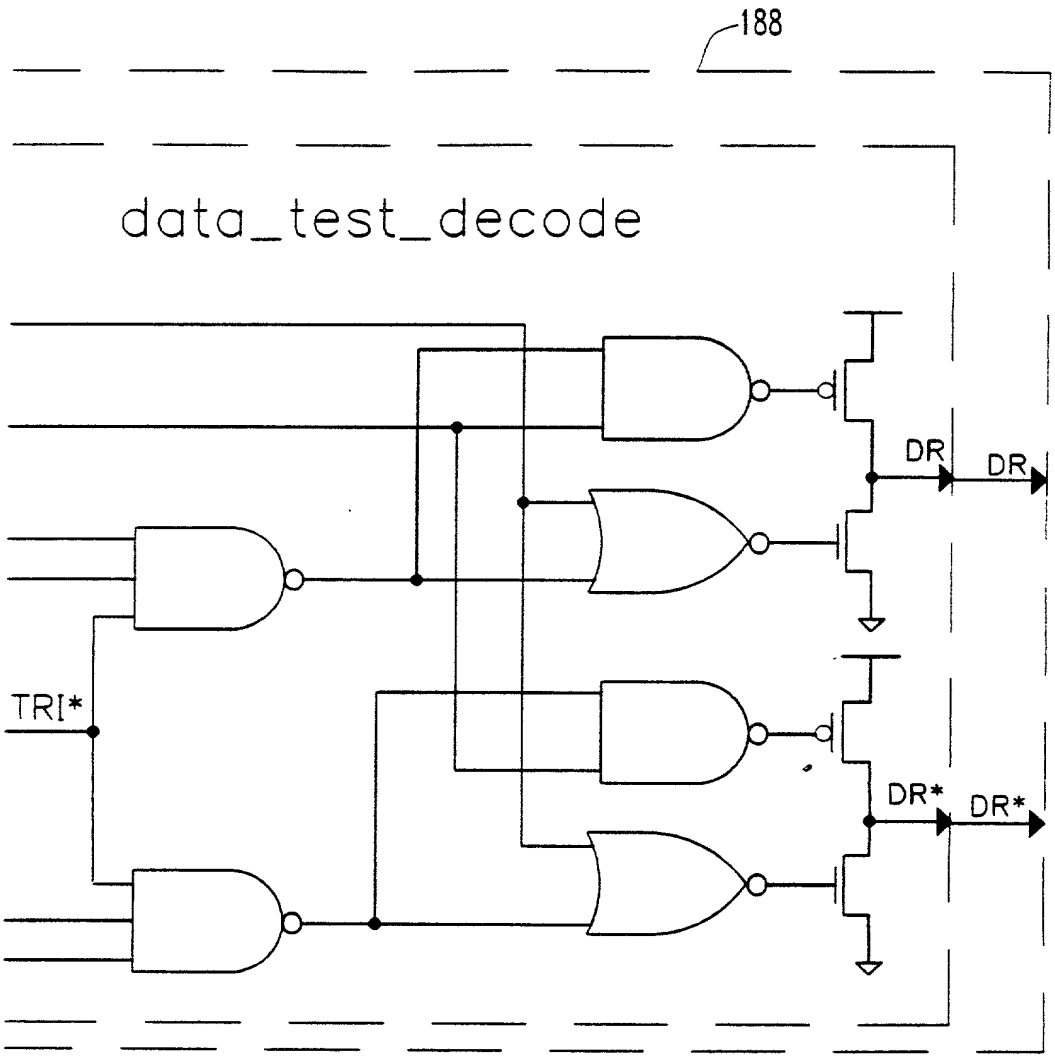


FIG. 29-2

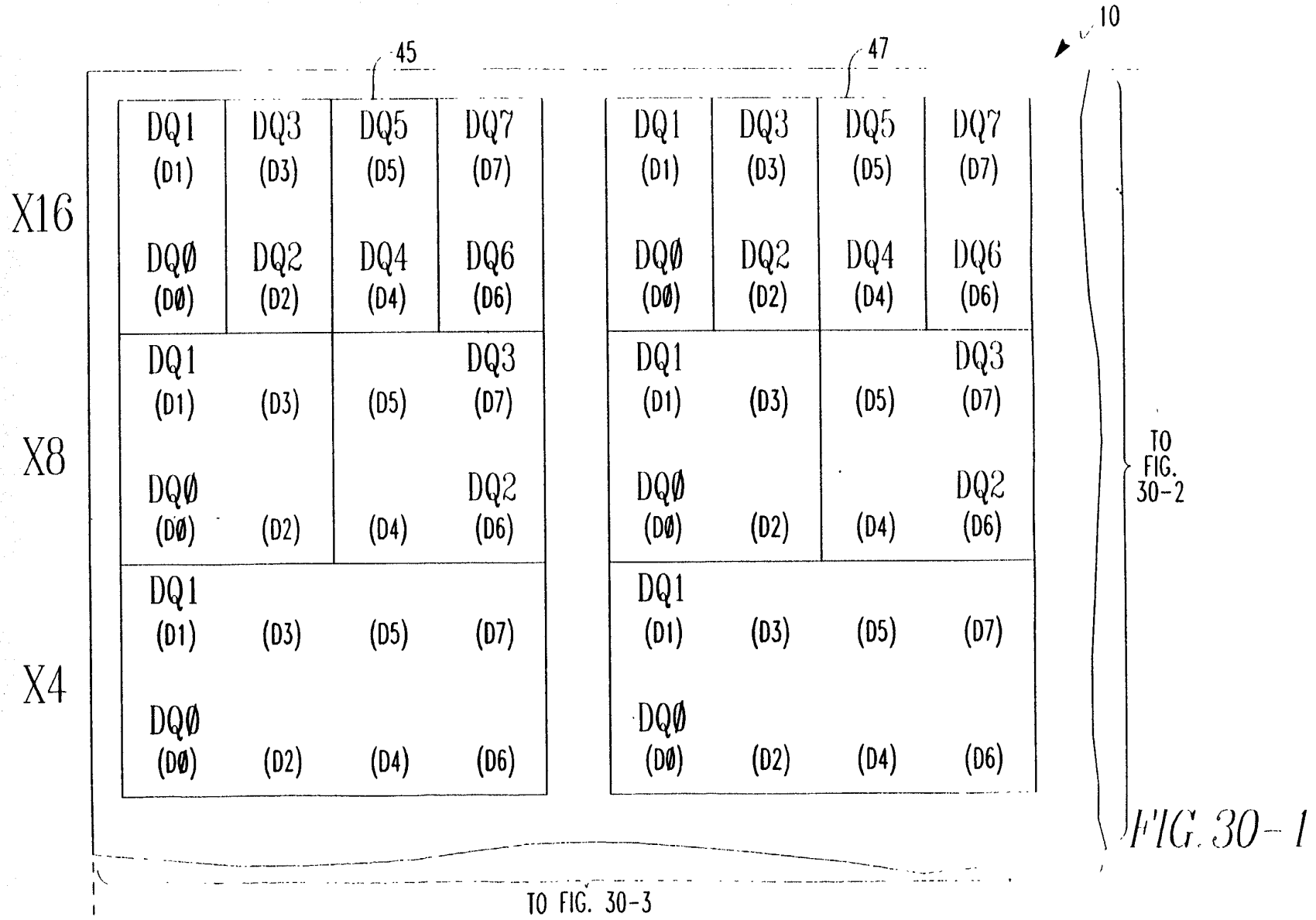

10
45
47
X16
X8
X4
DQ1 (D1)
DQ3 (D3)
DQ5 (D5)
DQ7 (D7)
DQØ (DØ)
DQ2 (D2)
DQ4 (D4)
DQ6 (D6)
TO FIG. 30-2
TO FIG. 30-3

FIG. 30-1

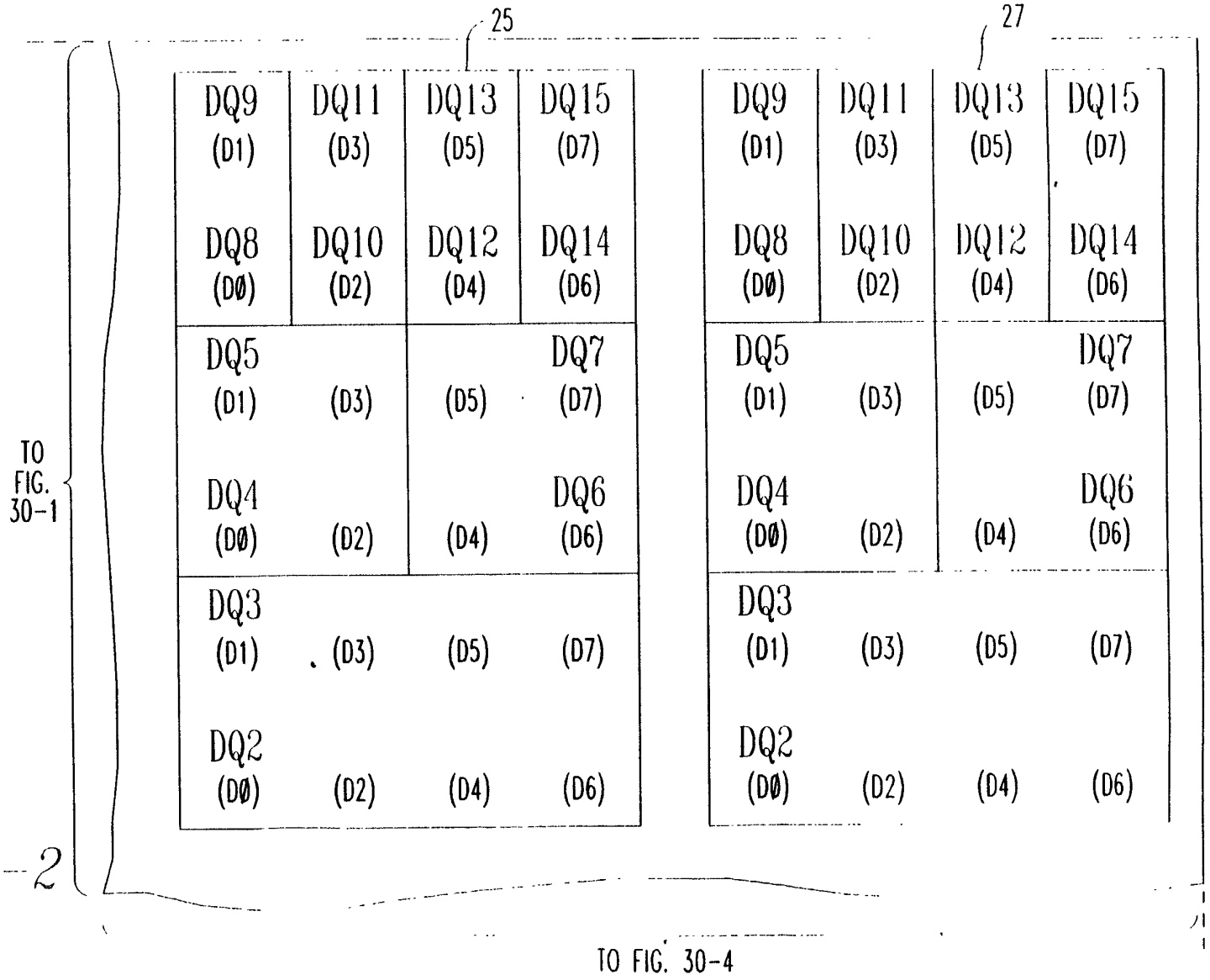

25
27
DQ9 (D1)
DQ11 (D3)
DQ13 (D5)
DQ15 (D7)
DQ8 (DØ)
DQ10 (D2)
DQ12 (D4)
DQ14 (D6)
DQ5 (D1)
DQ7 (D7)
DQ4 (DØ)
DQ6 (D6)
DQ3 (D1)
DQ2 (DØ)
TO FIG. 30-1
TO FIG. 30-4

FIG. 30-2

TO FIG. 30-1

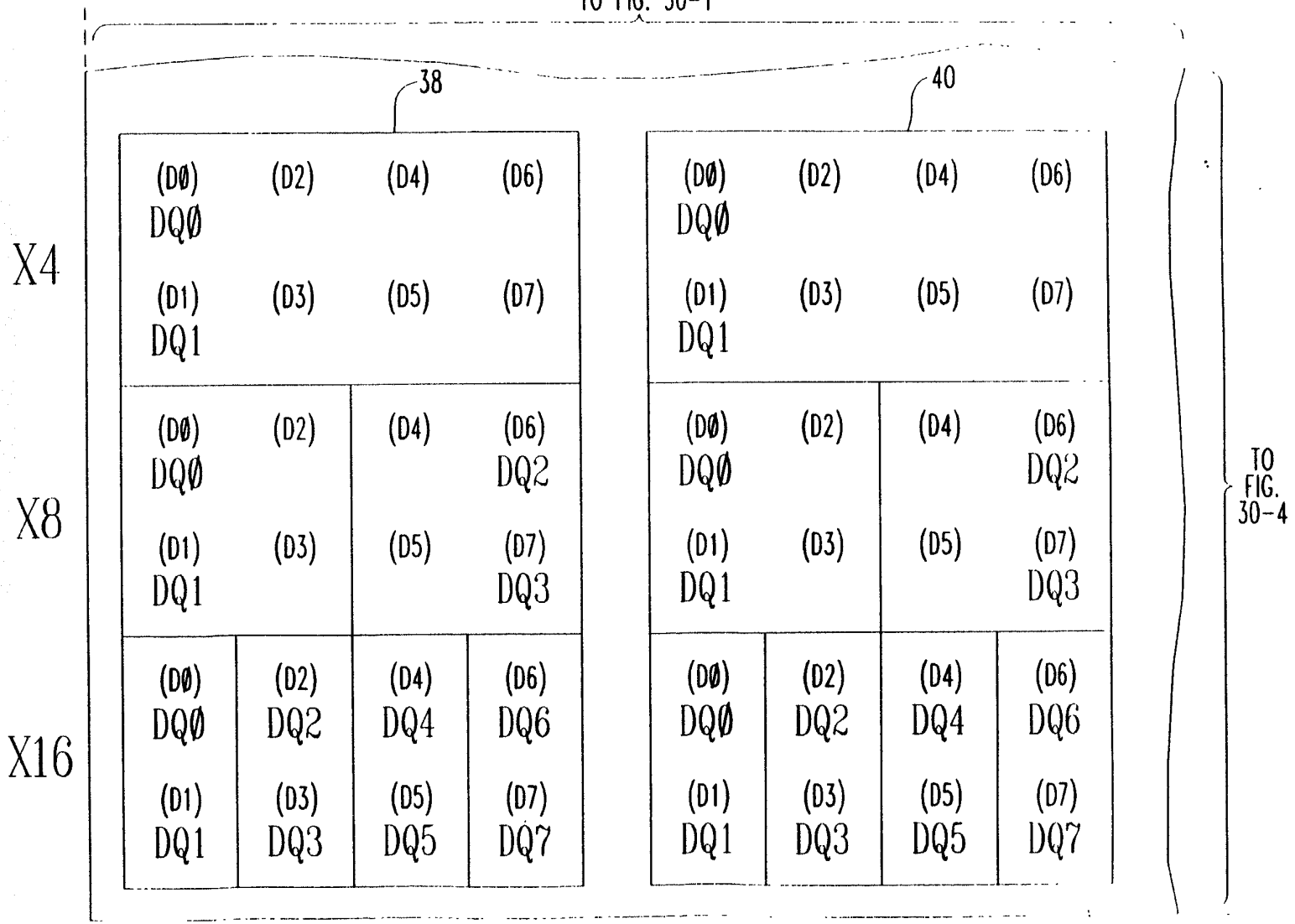


FIG. 30-3

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TO FIG. 30-2

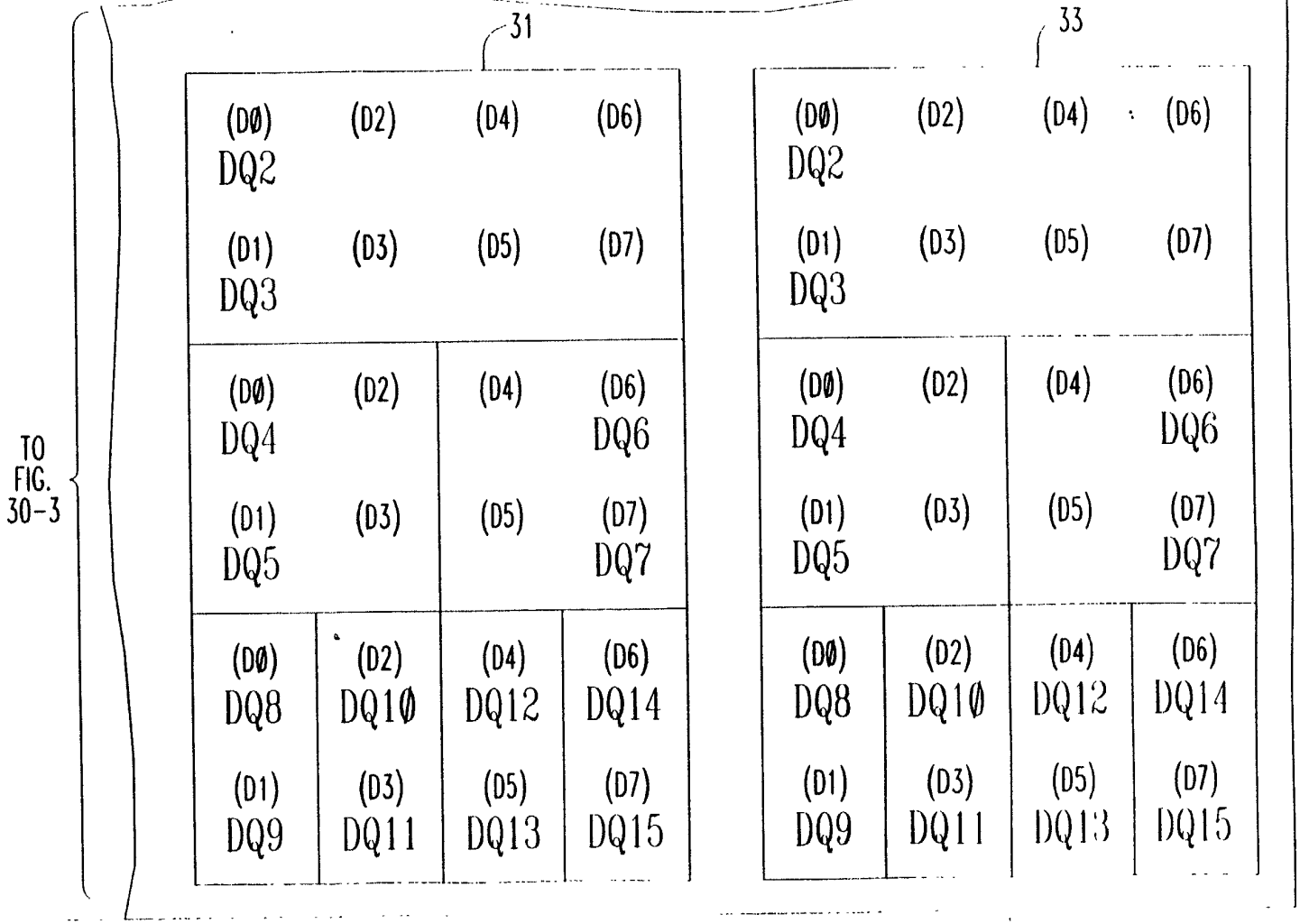

FIG 30 -1

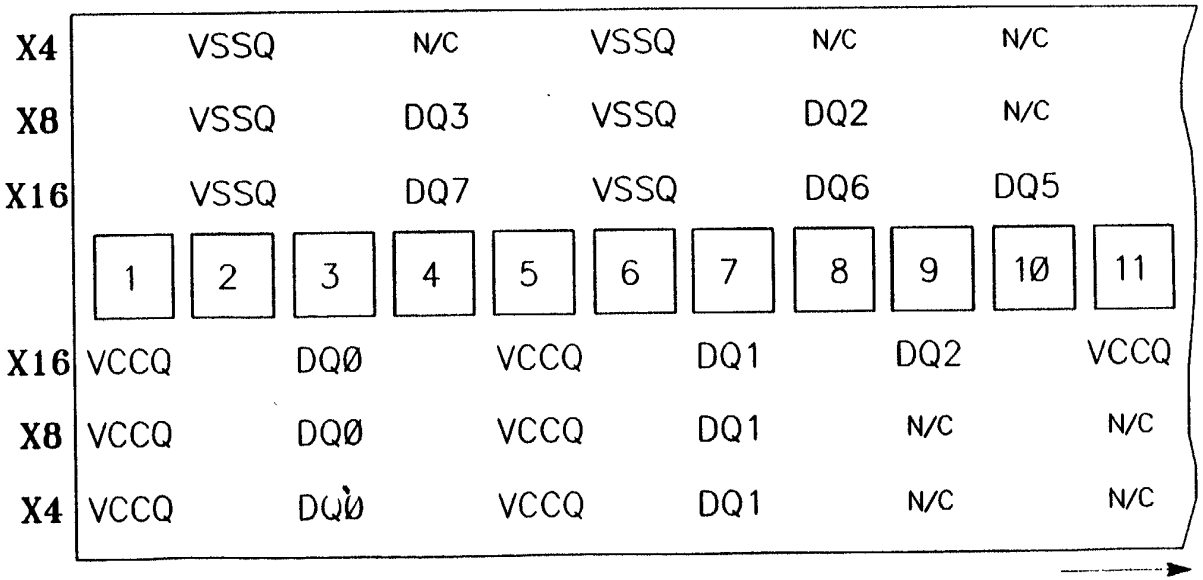
X4 VSSQ N/C VSSQ N/C N/C
X8 VSSQ DQ3 VSSQ DQ2 N/C
X16 VSSQ DQ7 VSSQ DQ6 DQ5
1 2 3 4 5 6 7 8 9 10 11
X16 VCCQ DQ0 VCCQ DQ1 DQ2 VCCQ
X8 VCCQ DQ0 VCCQ DQ1 N/C N/C
X4 VCCQ DQ0 VCCQ DQ1 N/C N/C
TO FIG. 31A2

FIG. 31A1

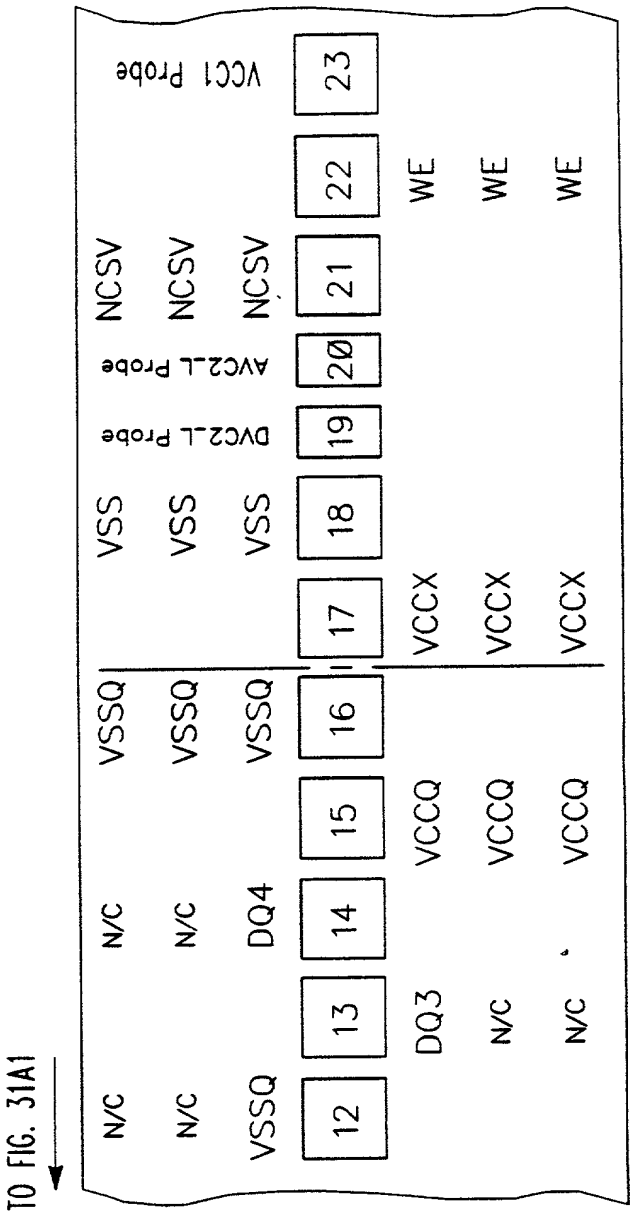
TO FIG. 31A1
N/C
N/C
VSSQ
12
N/C
N/C
DQ4
13
DQ3
N/C
N/C
14
VSSQ
VSSQ
VSSQ
15
VCCQ
VCCQ
VCCQ
16
17
VCCX
VCCX
VCCX
VSS
VSS
VSS
18
DVC2_L Probe
19
AVC2_L Probe
20
NCSV
NCSV
NCSV
21
WE
WE
WE
22
VCC1 Probe
23

FIG. 31A2

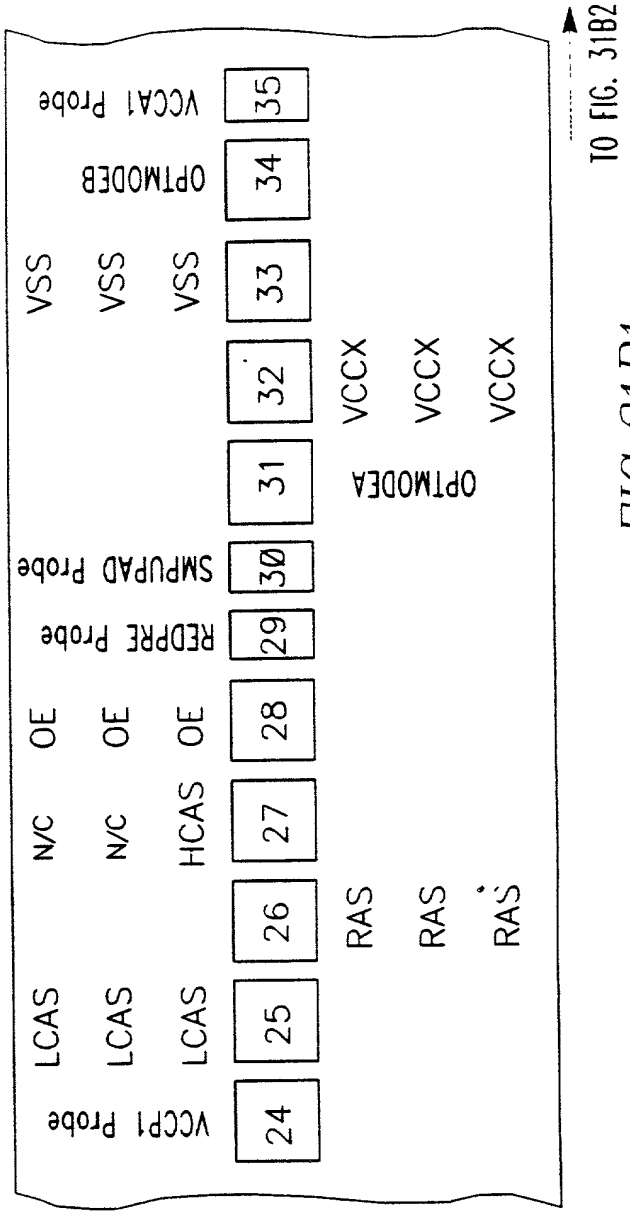
VCCP1 Probe
LCAS
LCAS
LCAS
N/C
N/C
HCAS
OE
OE
OE
REDPRE Probe
SMPUPAD Probe
OPTMODEA
VCCX
VCCX
VCCX
VSS
VSS
VSS
OPTMODEB
VCCA1 Probe
24
25
26
27
28
29
30
31
32
33
34
35
RAS
RAS
RAS
TO FIG. 31B2

FIG. 31B1

TO FIG. 31B1

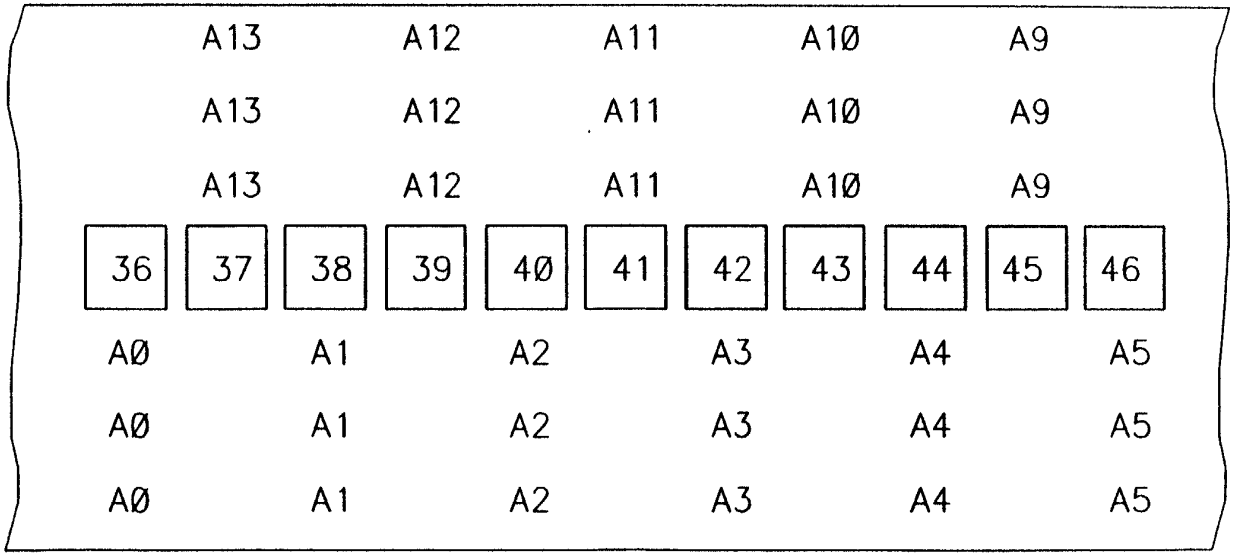

FIG. 31B2

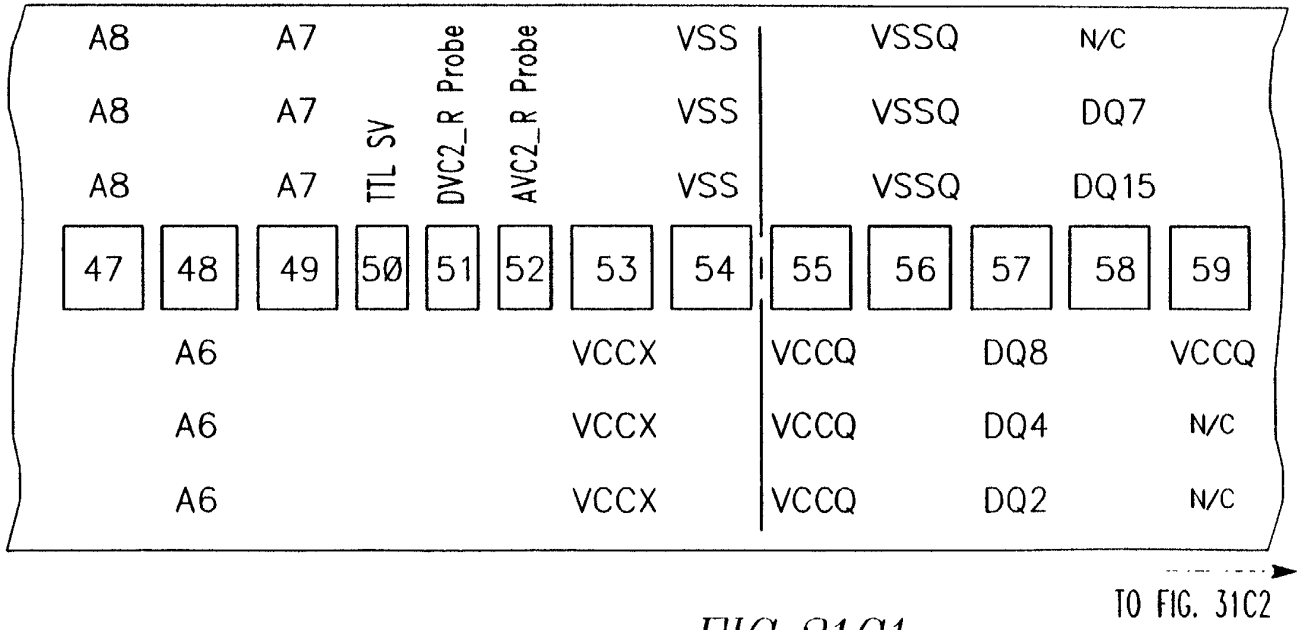

FIG. 31C1

TO FIG. 31C1

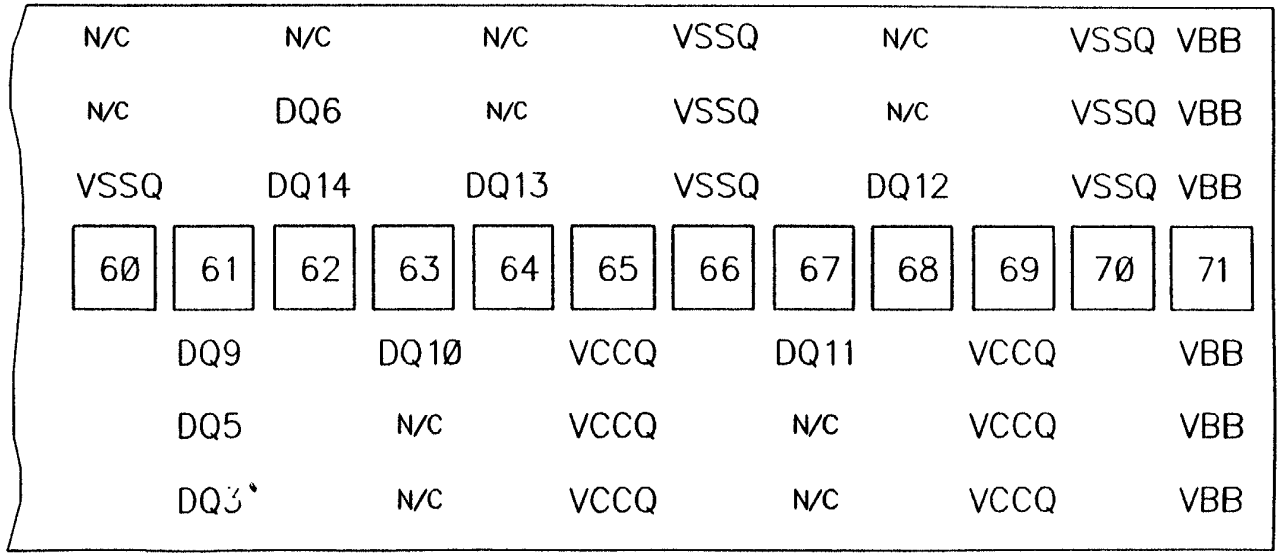

FIG. 31C2

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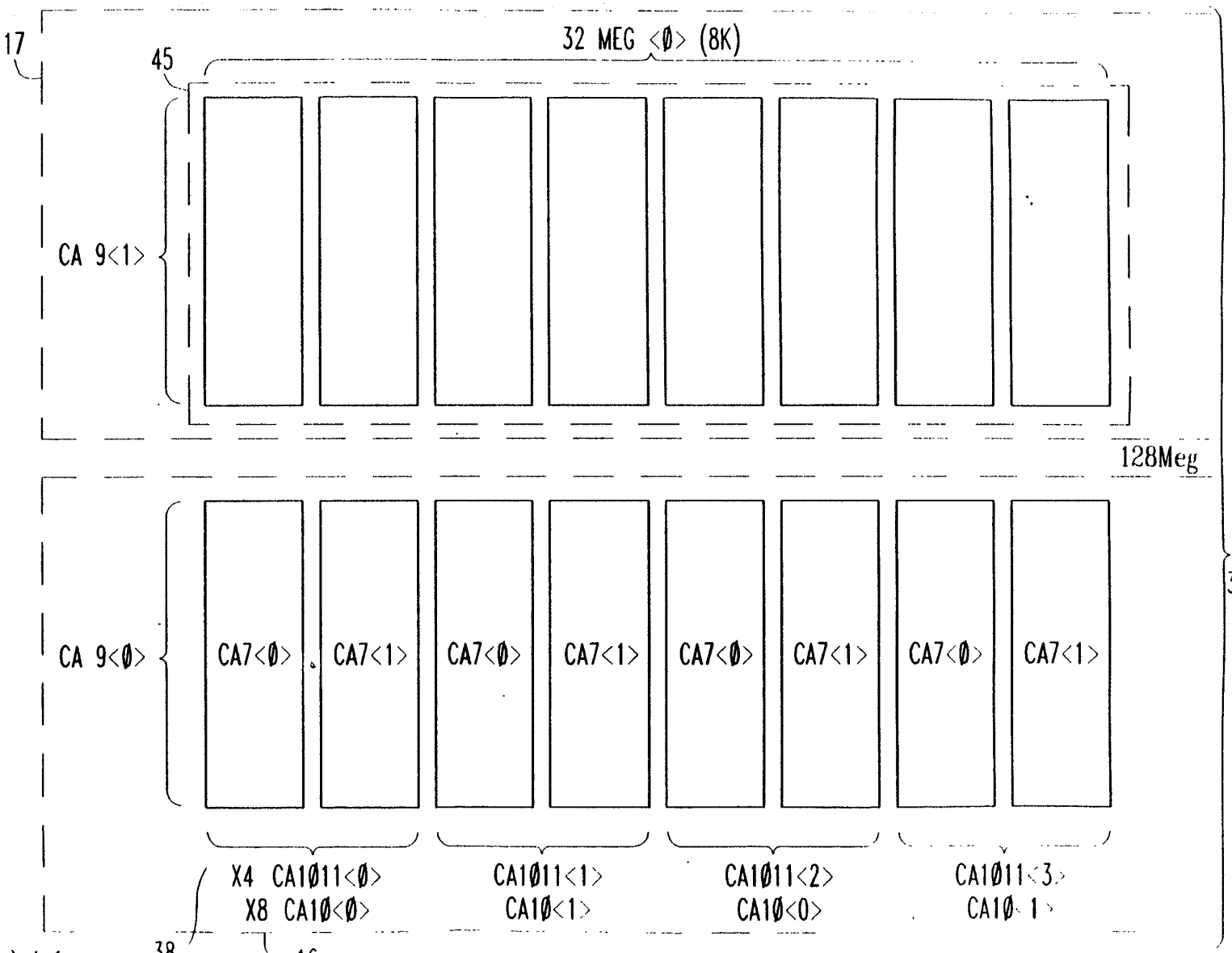
17
45
32 MEG <Ø> (8K)
CA 9<1>
128Meg
CA 9<Ø>
CA7<Ø>
CA7<1>
CA7<Ø>
CA7<1>
CA7<Ø>
CA7<1>
CA7<Ø>
CA7<1>
X4 CA1Ø11<Ø>
X8 CA1Ø<Ø>
CA1Ø11<1>
CA1Ø<1>
CA1Ø11<2>
CA1Ø<0>
CA1Ø11<3>
CA1Ø<1>
38
16
TO FIG. 32A2

FIG. 32A1

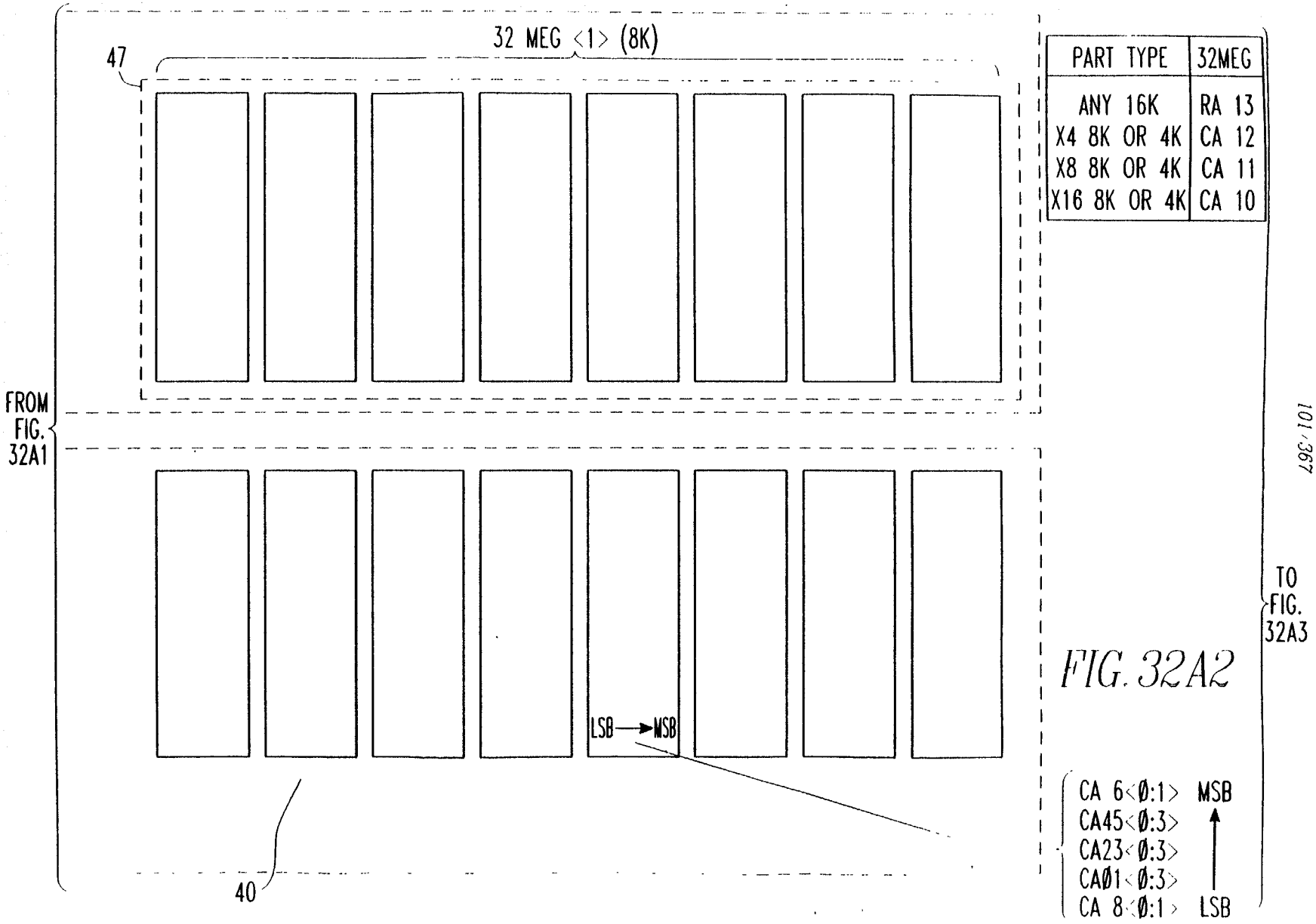

FIG. 32A2

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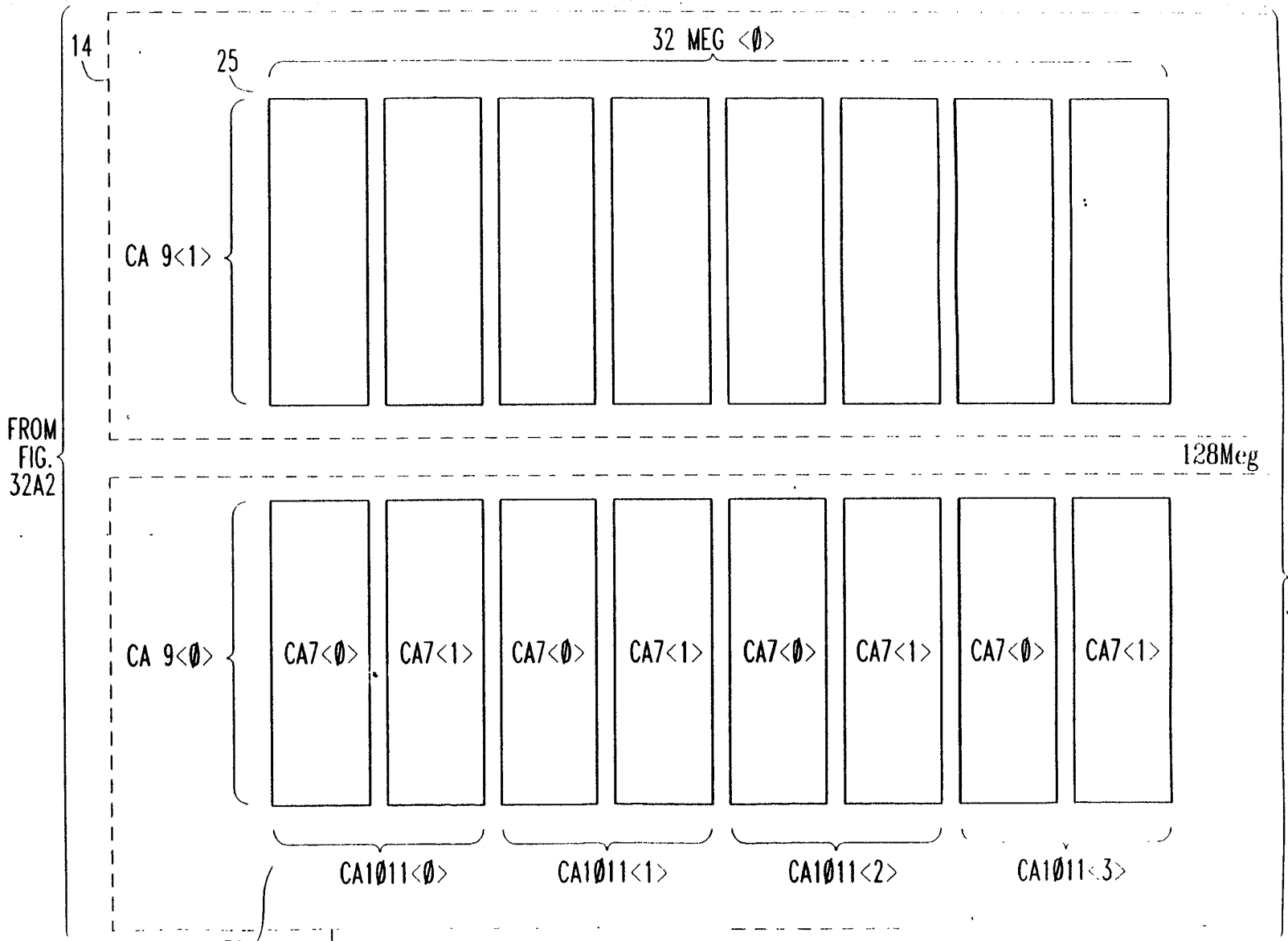
14
25
32 MEG <Ø>
CA 9<1>
FROM FIG. 32A2
128Meg
CA 9<Ø>
CA7<Ø>
CA7<1>
CA7<Ø>
CA7<1>
CA7<Ø>
CA7<1>
CA7<Ø>
CA7<1>
CA1Ø11<Ø>
CA1Ø11<1>
CA1Ø11<2>
CA1Ø11<3>
31
15
TO FIG. 32A4
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FIG 32A3

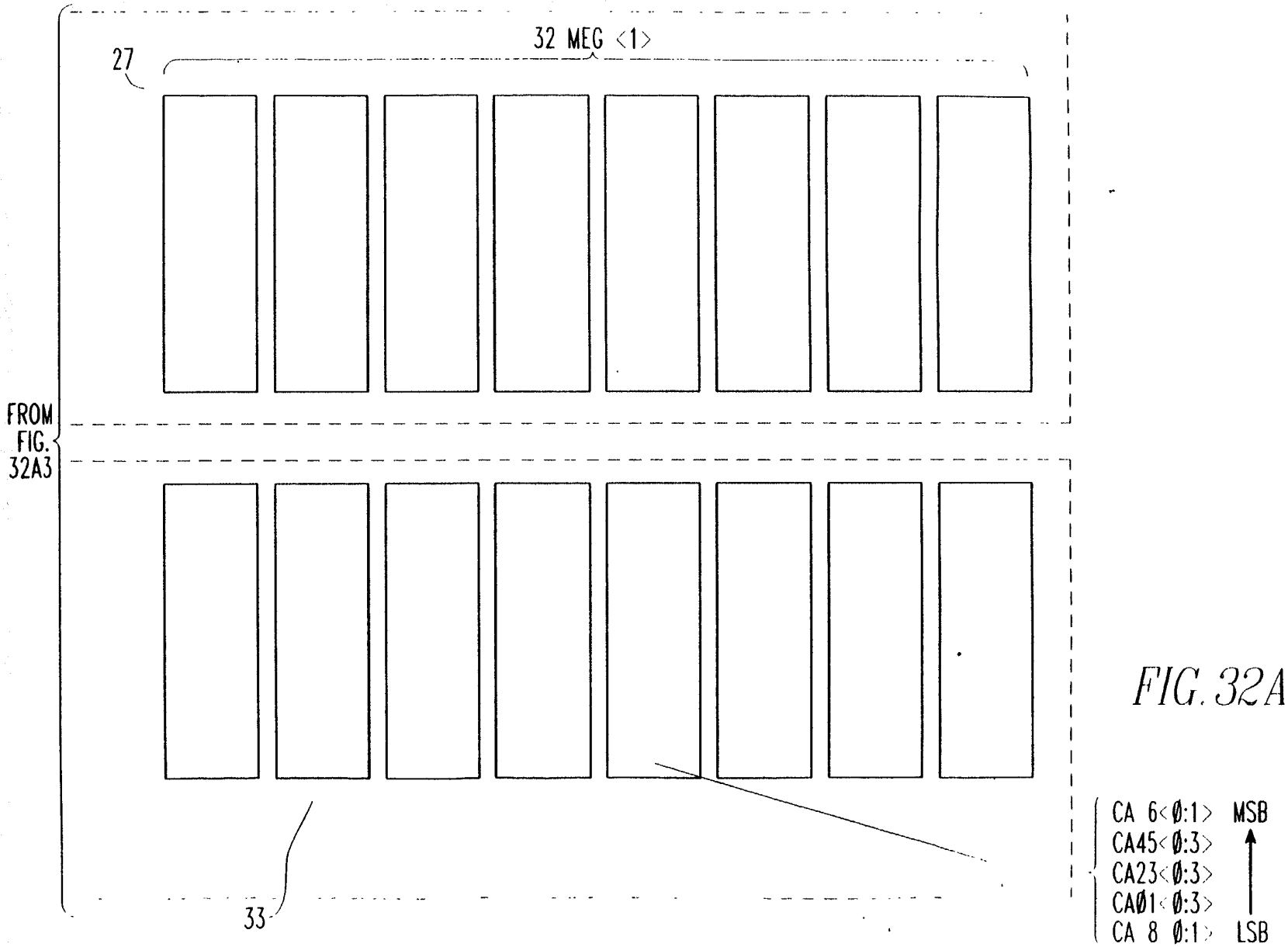
32 MEG <1>
27
FROM FIG. 32A3
33
CA 6<Ø:1> MSB
CA45<Ø:3>
CA23<Ø:3>
CAØ1<Ø:3>
CA 8 Ø:1> LSB

FIG. 32A4

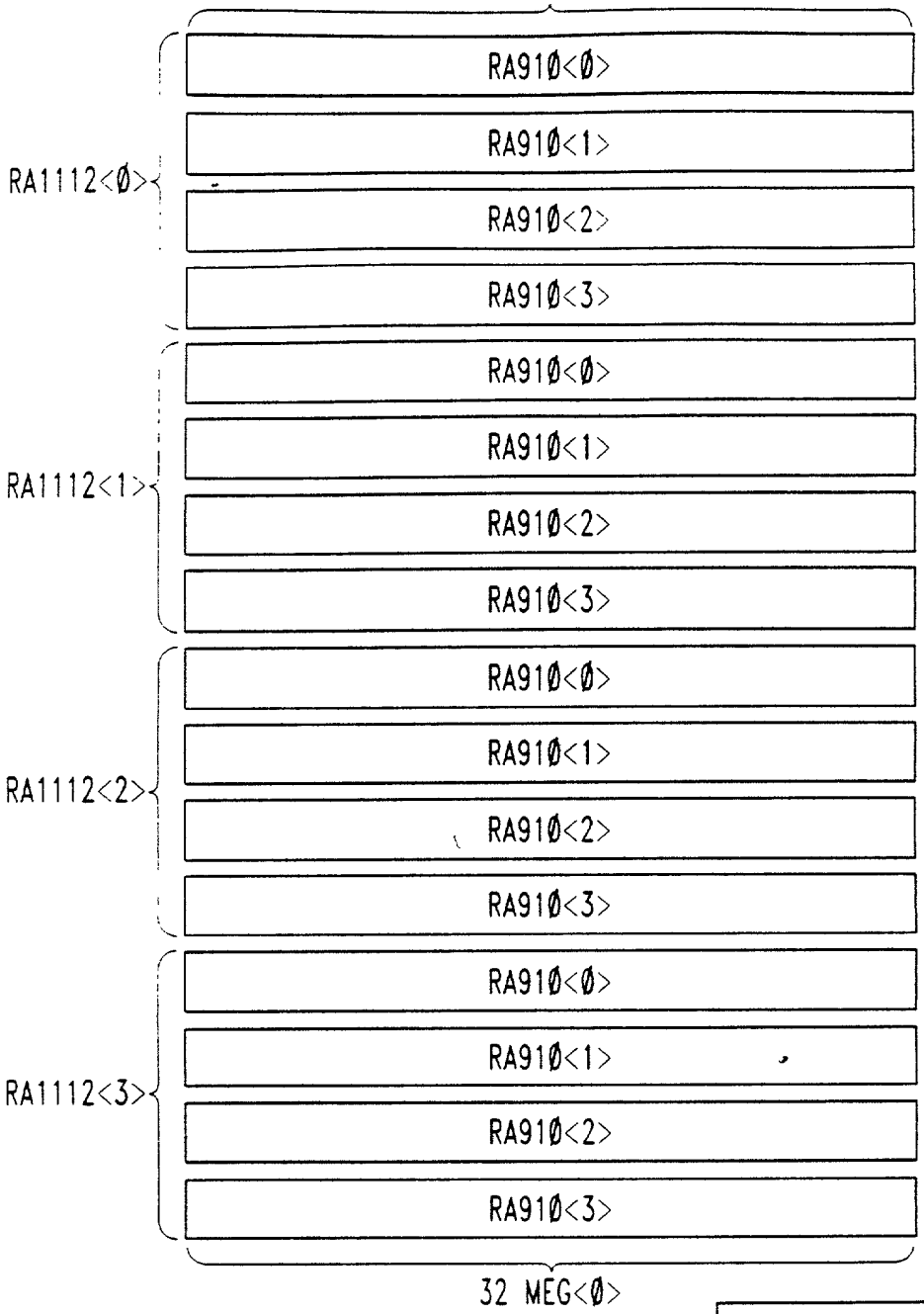

FIG. 32B1

PART TYPE	32MEG
ANY 16K	RA_13
X4 8K OR 4K	CA_12
X8 8K OR 4K	CA_11
X16 8K OR 4K	CA_10

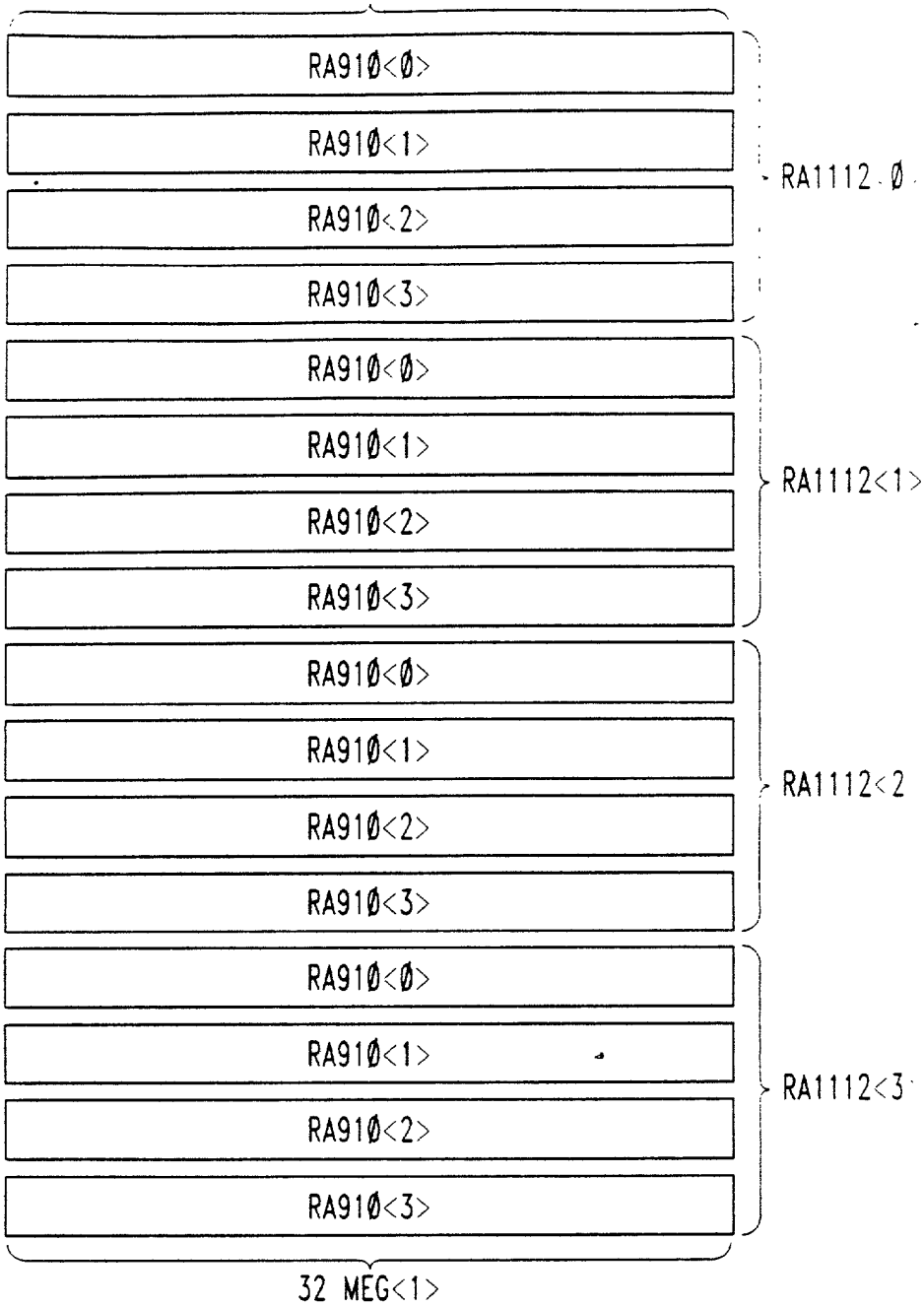
RA910<0>
RA910<1>
RA910<2>
RA910<3>
RA1112<0>
RA910<0>
RA910<1>
RA910<2>
RA910<3>
RA1112<1>
RA910<0>
RA910<1>
RA910<2>
RA910<3>
RA1112<2
RA910<0>
RA910<1>
RA910<2>
RA910<3>
RA1112<3
32 MEG<1>

FIG. 32B2

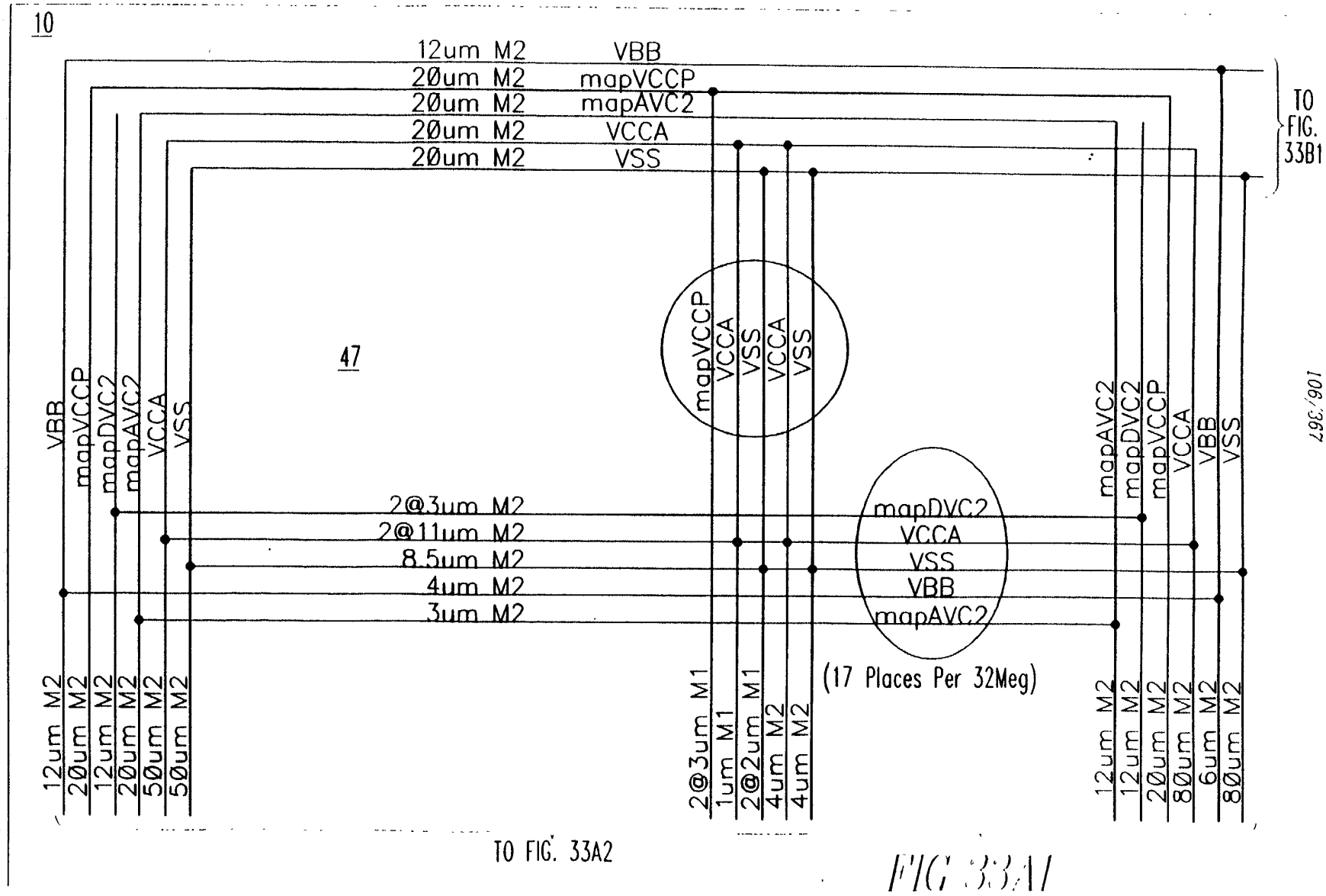

FIG 33A1

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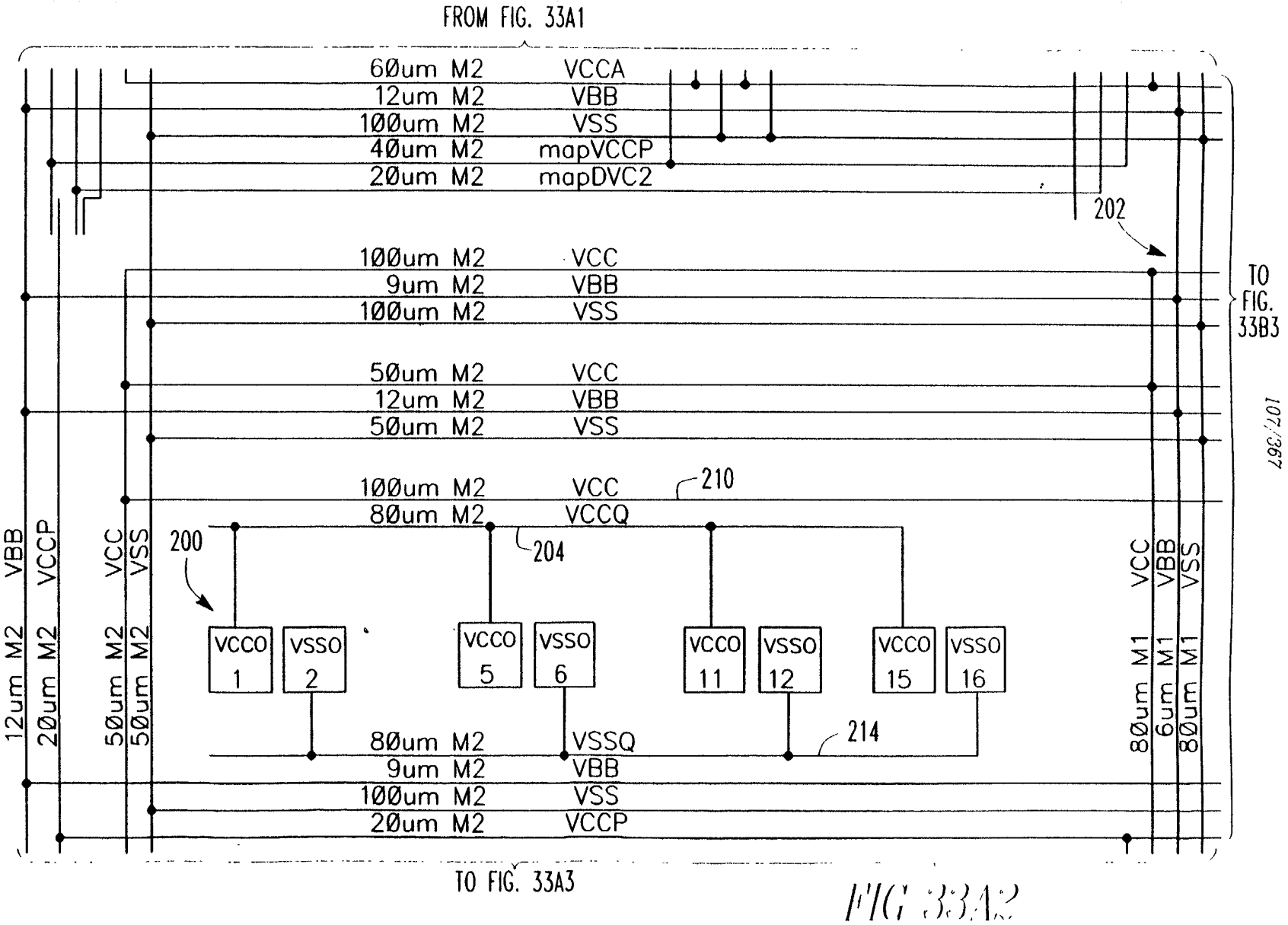
FROM FIG. 33A1
60um M2 VCCA
12um M2 VBB
100um M2 VSS
40um M2 mapVCCP
20um M2 mapDVC2
202
100um M2 VCC
9um M2 VBB
100um M2 VSS
50um M2 VCC
12um M2 VBB
50um M2 VSS
100um M2 VCC
210
80um M2 VCCQ
200
204
VCCO 1
VSSO 2
VCCO 5
VSSO 6
VCCO 11
VSSO 12
VCCO 15
VSSO 16
214
80um M2 VSSQ
9um M2 VBB
100um M2 VSS
20um M2 VCCP
TO FIG. 33B3
TO FIG. 33A3
12um M2 VBB
20um M2 VCCP
50um M2 VCC
50um M2 VSS
80um M1 VCC
6um M1 VBB
80um M1 VSS

FIG 33A2

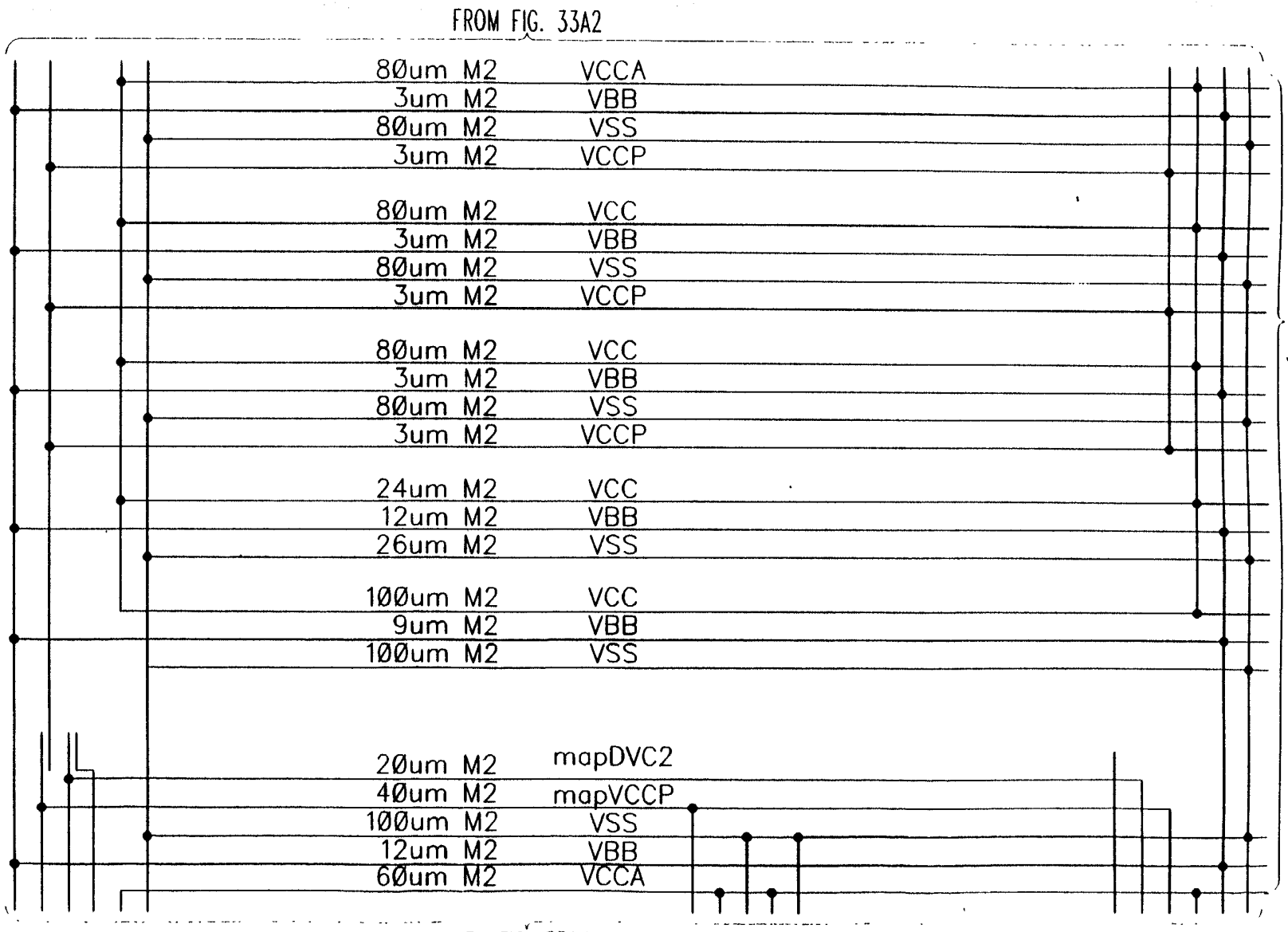
FROM FIG. 33A2
80um M2 VCCA
3um M2 VBB
80um M2 VSS
3um M2 VCCP
80um M2 VCC
3um M2 VBB
80um M2 VSS
3um M2 VCCP
80um M2 VCC
3um M2 VBB
80um M2 VSS
3um M2 VCCP
24um M2 VCC
12um M2 VBB
26um M2 VSS
100um M2 VCC
9um M2 VBB
100um M2 VSS
20um M2 mapDVC2
40um M2 mapVCCP
100um M2 VSS
12um M2 VBB
60um M2 VCCA
TO FIG. 33B5
TO FIG. 33A4

FIG. 33A3

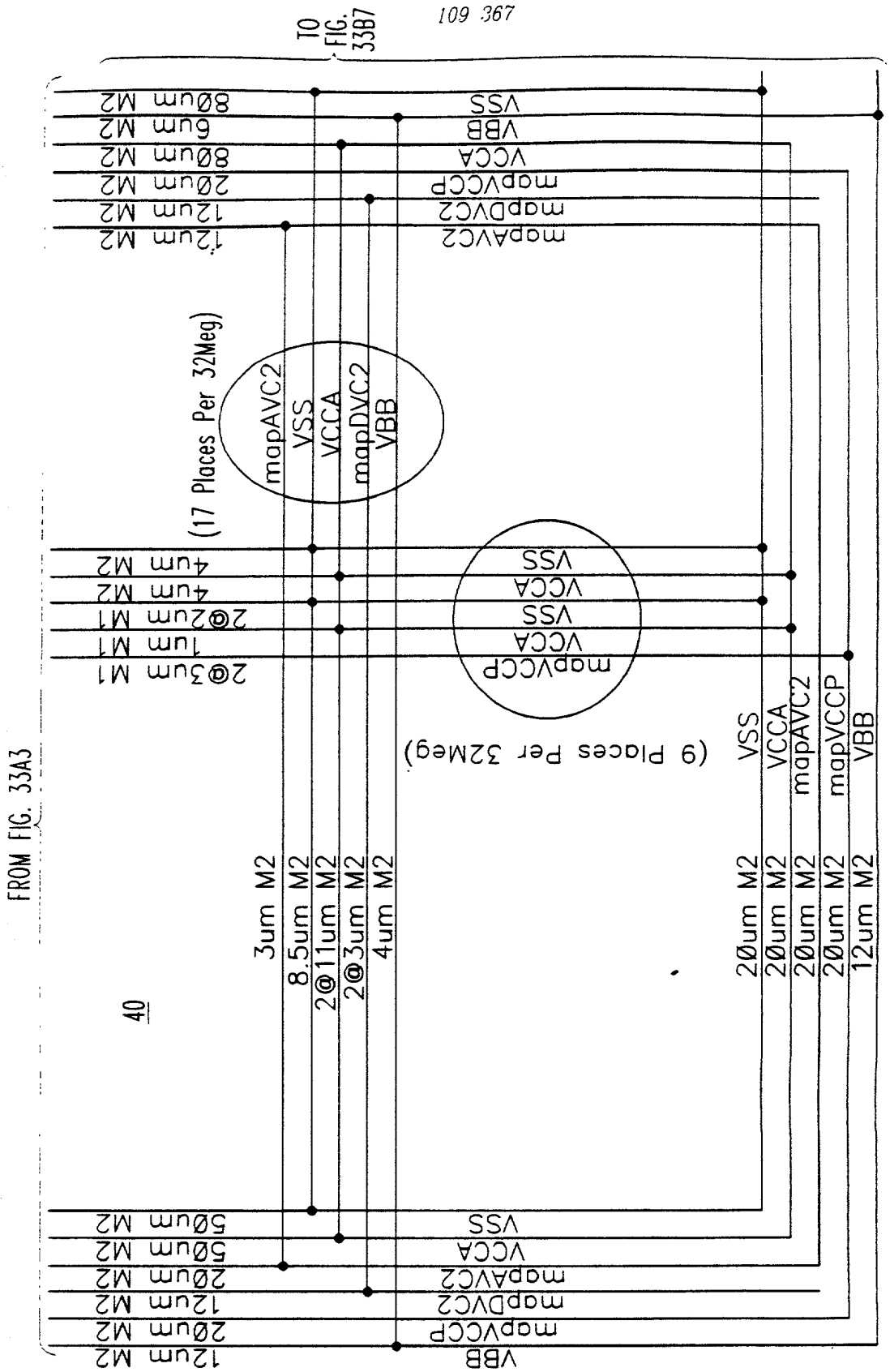
TO FIG. 33B7
FROM FIG. 33A3
40
3um M2
8.5um M2
2@11um M2
2@3um M2
4um M2
20um M2
20um M2
20um M2
20um M2
12um M2
VSS
VCCA
mapAVC2
mapVCCP
VBB
(9 Places Per 32Meg)
mapVCCP
VCCA
VSS
VCCA
VSS
(17 Places Per 32Meg)
mapAVC2
VSS
VCCA
mapDVC2
VBB
2@3um M1
1um M1
2@2um M1
4um M2
4um M2
VSS
12um M2
20um M2
12um M2
mapDVC2
mapAVC2
50um M2
VCCA
50um M2
VSS
80um M2
20um M2
mapVCCP
80um M2
VCCA
6um M2
VBB
80um M2
VSS

FIG. 33A1

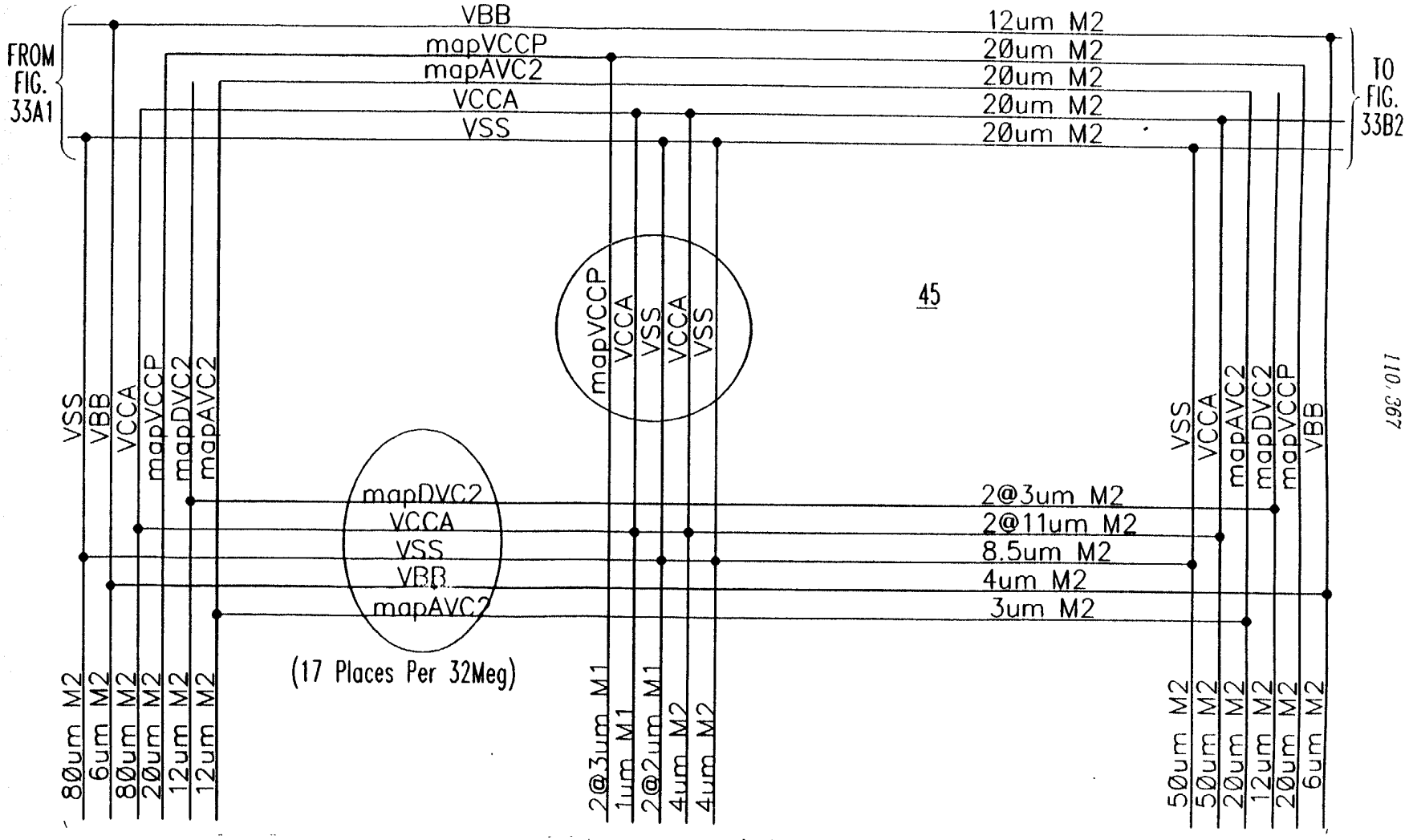

FIG 33B1

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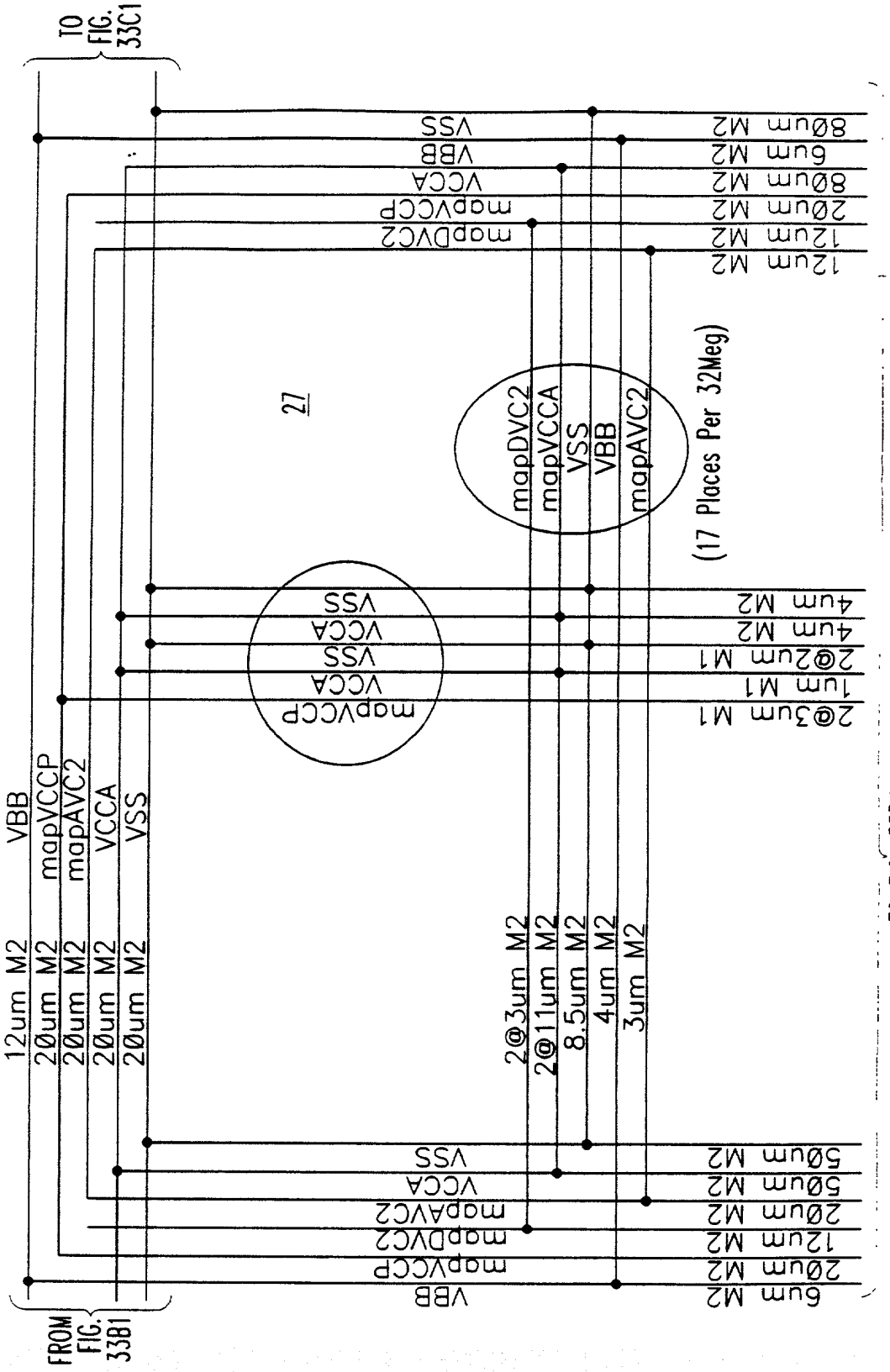
TO FIG. 33C1
FROM FIG. 33B1
TO FIG. 33B4
12um M2
20um M2
20um M2
20um M2
20um M2
VBB
mapVCCP
mapAVC2
VCCA
VSS
6um M2
20um M2
12um M2
20um M2
50um M2
50um M2
VBB
VCCA
mapVCCP
mapDVC2
mapAVC2
VSS
2@3um M2
2@11um M2
8.5um M2
4um M2
3um M2
2@3um M1
1um M1
2@2um M1
4um M2
4um M2
VSS
VCCA
VSS
VCCA
mapVCCP
12um M2
12um M2
20um M2
80um M2
6um M2
80um M2
VSS
VBB
VCCA
mapVCCP
mapDVC2
mapDVC2
mapVCCA
VSS
VBB
mapAVC2
(17 Places Per 32Meg)
27

FIG. 33B3

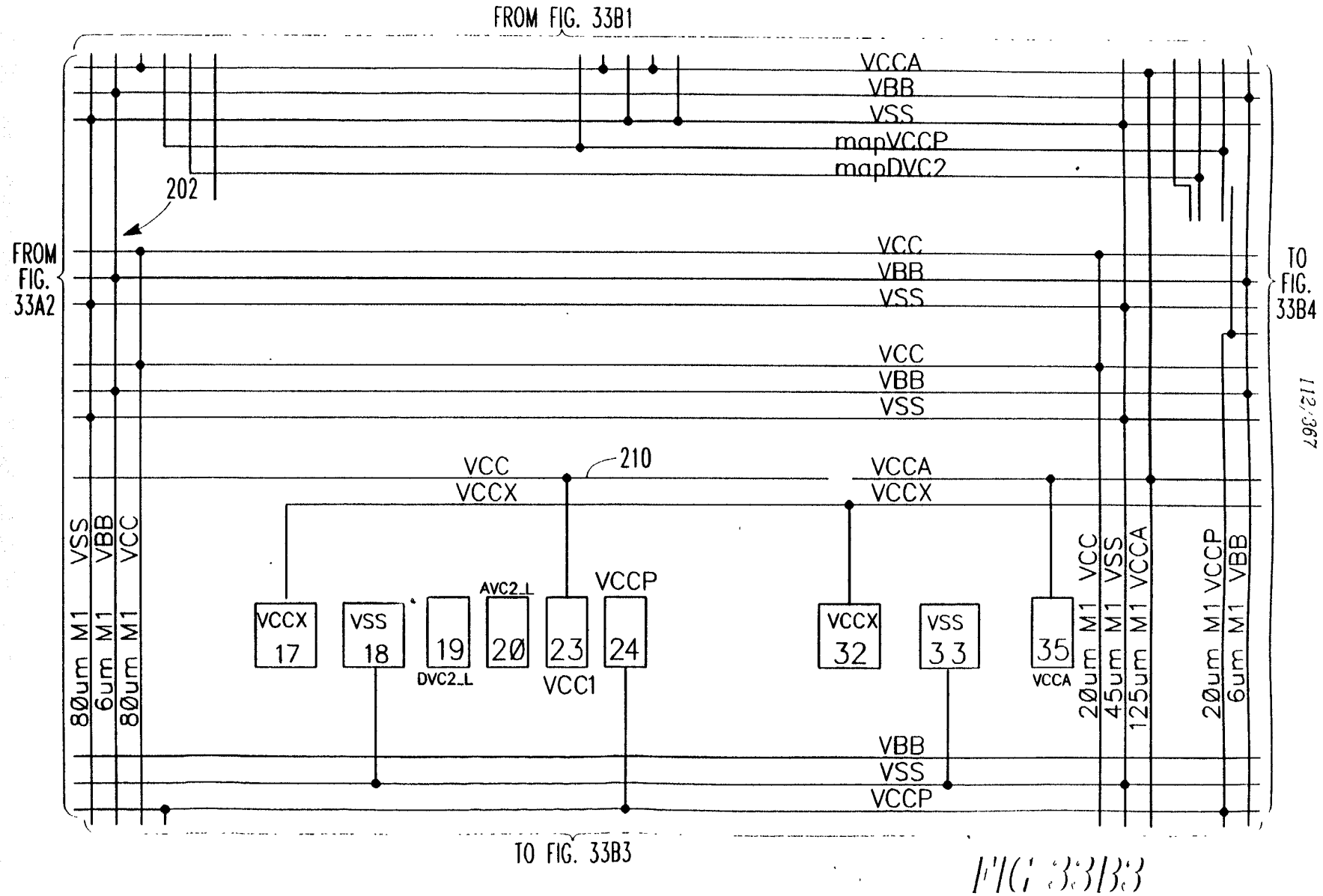

FIG 33B3

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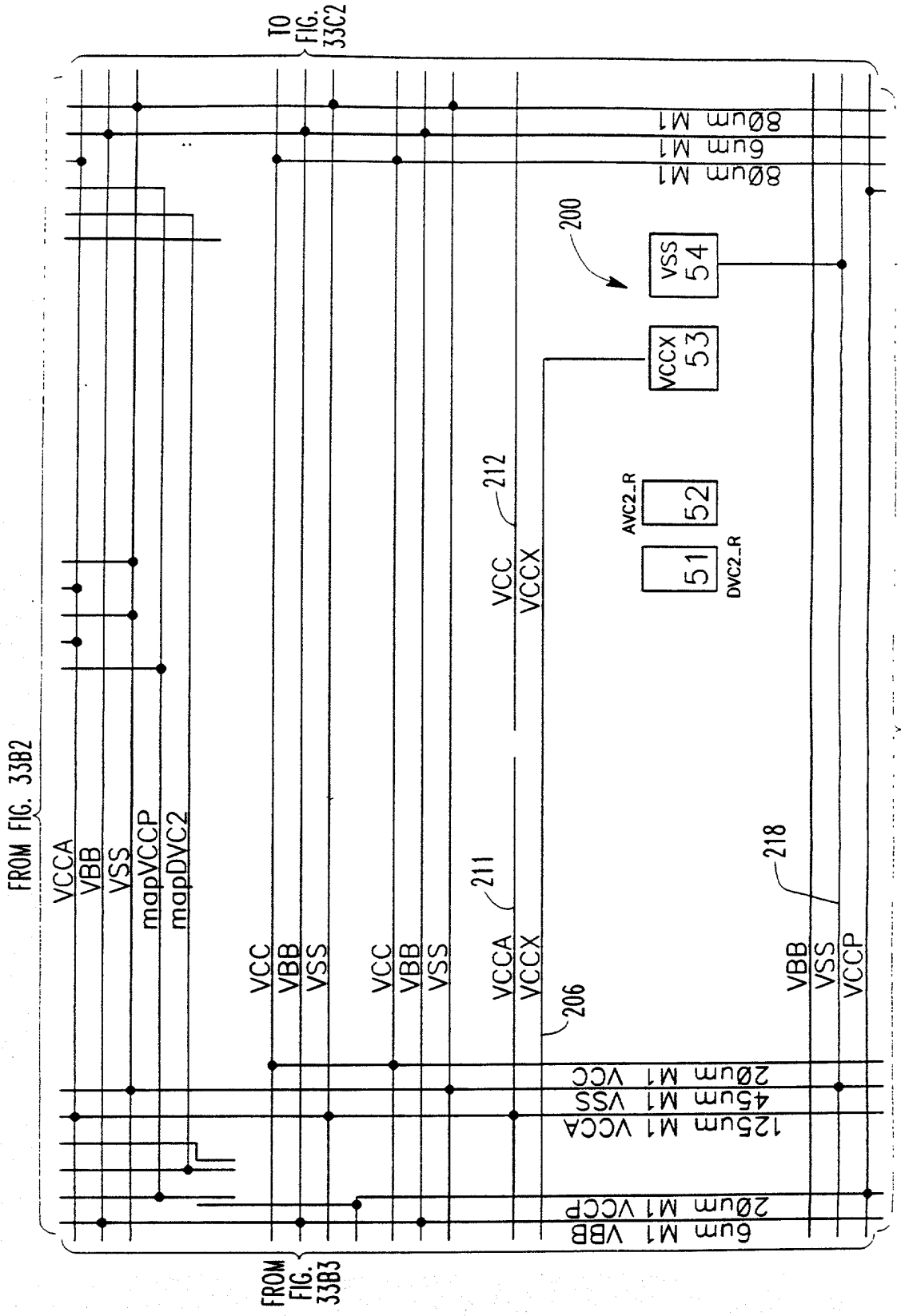
TO FIG. 33C2
FROM FIG. 33B2
FROM FIG. 33B3
TO FIG. 33B6
VCCA
VBB
VSS
mapVCCP
mapDVC2
VCC
VBB
VSS
VCC
VBB
VSS
VCCA
VCCX
VCC
VCCX
VBB
VSS
VCCP
211
212
218
206
200
VSS 54
VCCX 53
AVC2_R
52
DVC2_R
51
80um M1
6um M1
80um M1
20um M1 VCC
45um M1 VSS
125um M1 VCCA
20um M1 VCCP
6um M1 VBB

FIG. 33B1

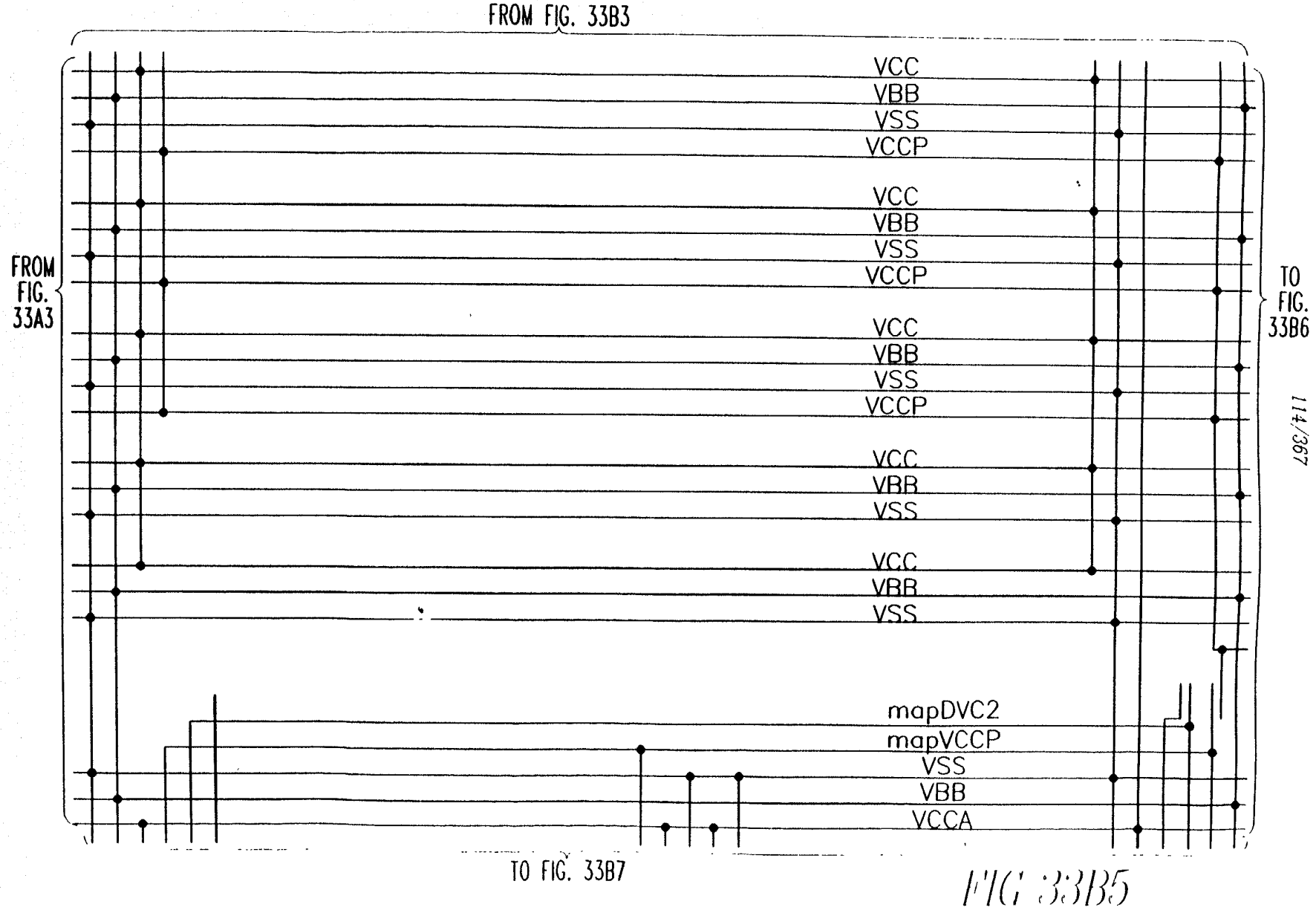

FIG 33B5

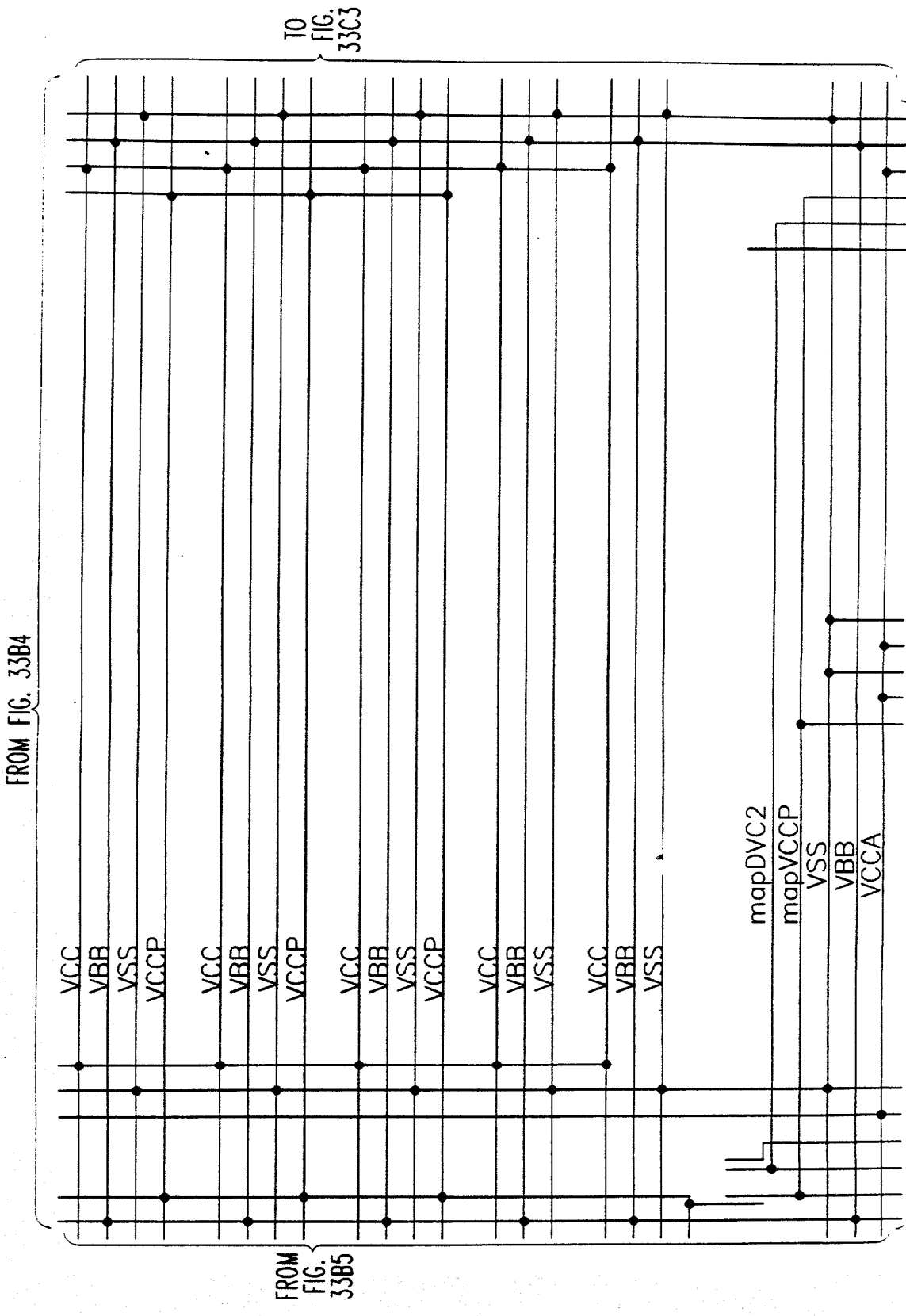
FROM FIG. 33B4
TO FIG. 33C3
FROM FIG. 33B5
TO FIG. 33B8
VCC
VBB
VSS
VCCP
mapDVC2
mapVCCP
VSS
VBB
VCCA

FIG. 33B6

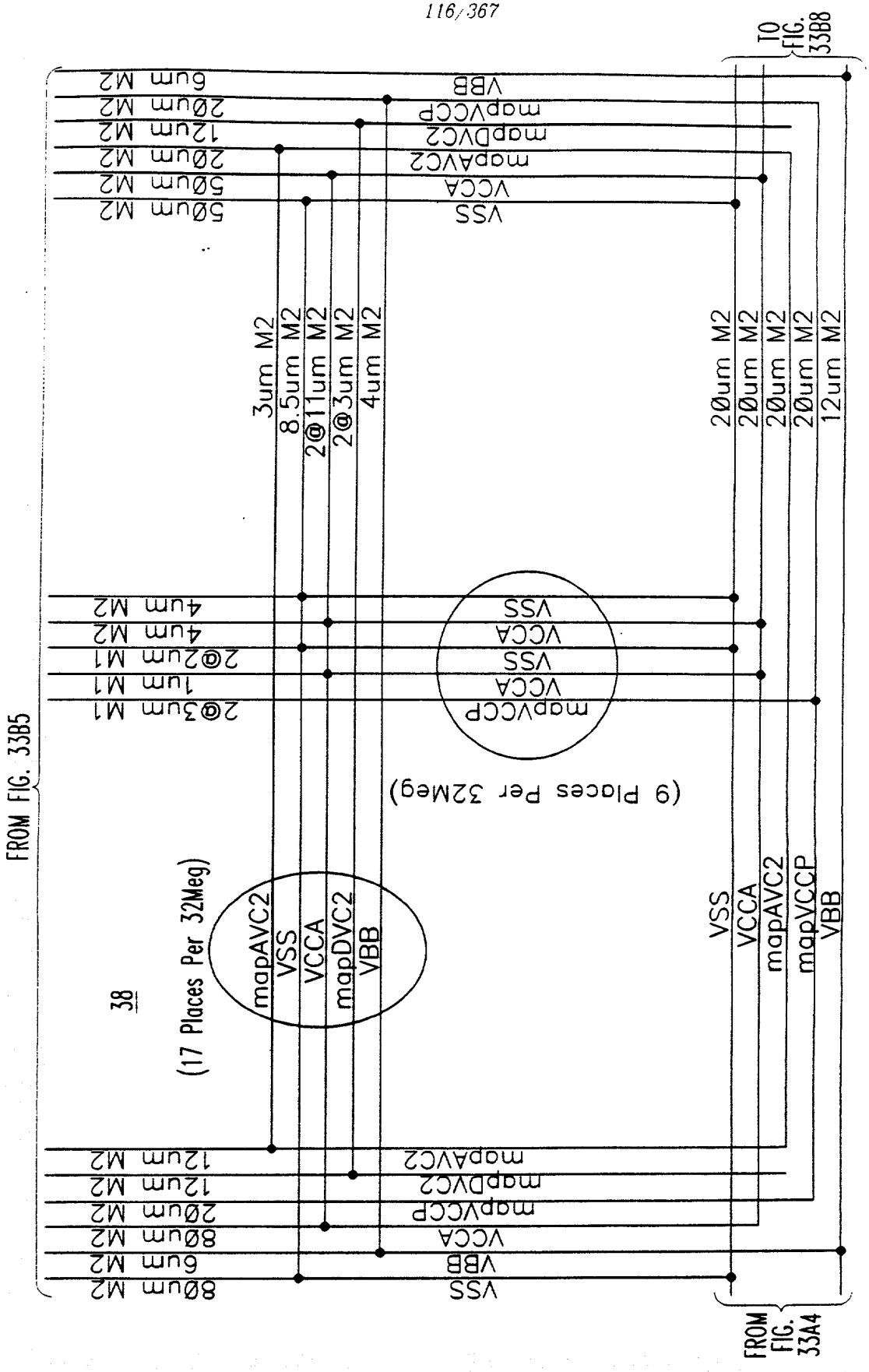
FROM FIG. 33B5
TO FIG. 33B8
FROM FIG. 33A4
38
(17 Places Per 32Meg)
(9 Places Per 32Meg)
mapAVC2
VSS
VCCA
mapDVC2
VBB
mapVCCP
VCCA
VSS
mapVCCP
VCCA
VSS
mapAVC2
mapDVC2
mapVCCP
VCCA
VBB
mapAVC2
mapDVC2
mapVCCP
VCCA
VSS
2@3um M1
1um M1
2@2um M1
4um M2
4um M2
12um M2
12um M2
20um M2
80um M2
6um M2
80um M2
3um M2
8.5um M2
2@11um M2
2@3um M2
4um M2
20um M2
20um M2
20um M2
20um M2
12um M2
VSS
VCCA
mapAVC2
mapVCCP
VBB
VBB
mapVCCP
mapDVC2
mapAVC2
VCCA
VSS
6um M2
20um M2
12um M2
20um M2
50um M2
50um M2

FIG. 33B7

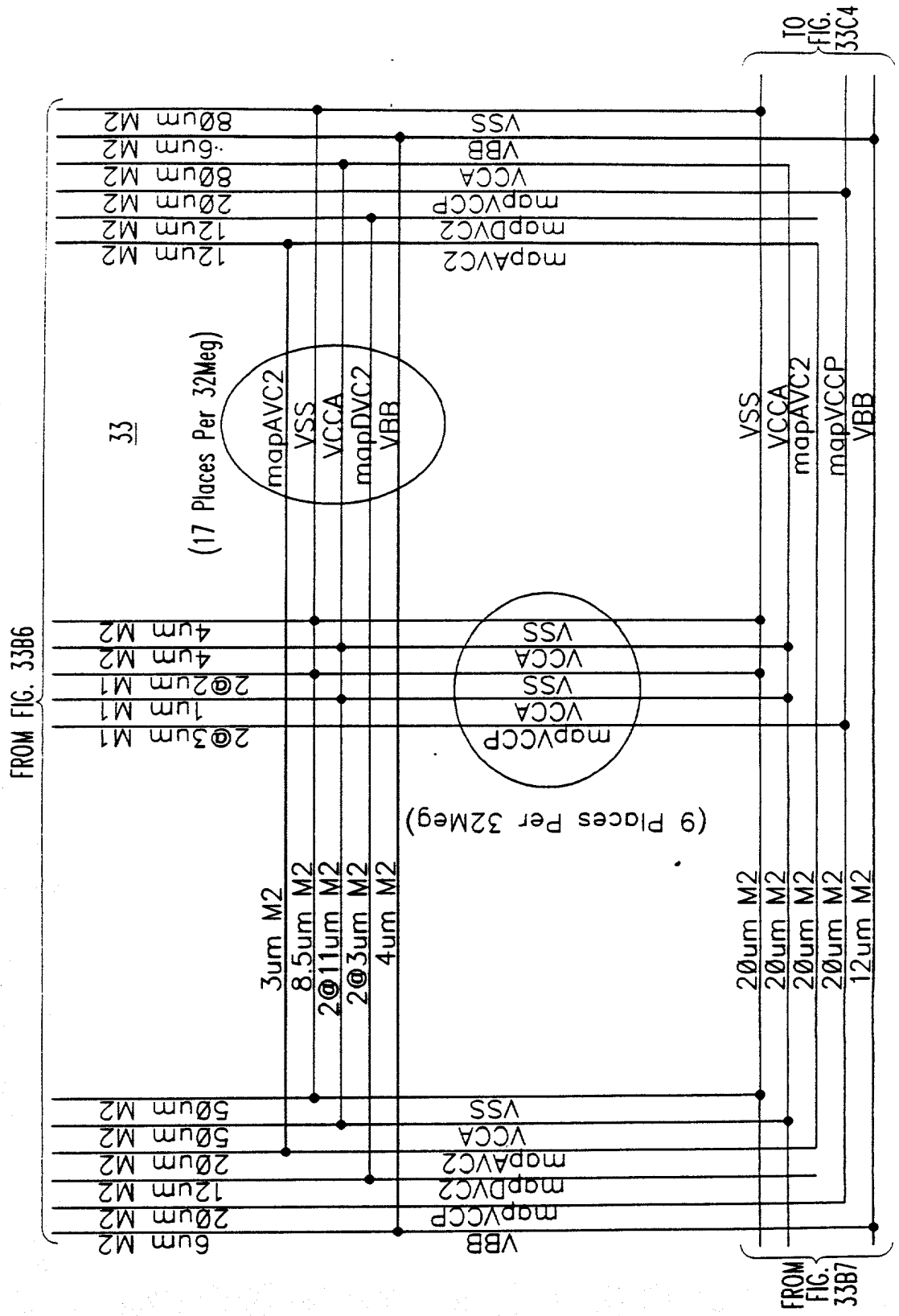
FROM FIG. 33B6
TO FIG. 33C4
FROM FIG. 33B7
(17 Places Per 32Meg)
(9 Places Per 32Meg)
33
mapAVC2
VSS
VCCA
mapDVC2
VBB
mapVCCP
6um M2
20um M2
12um M2
20um M2
50um M2
50um M2
4um M2
4um M2
2@2um M1
1um M1
2@3um M1
12um M2
12um M2
20um M2
80um M2
.6um M2
80um M2
3um M2
8.5um M2
2@11um M2
2@3um M2
4um M2
20um M2

FIG. 33B8

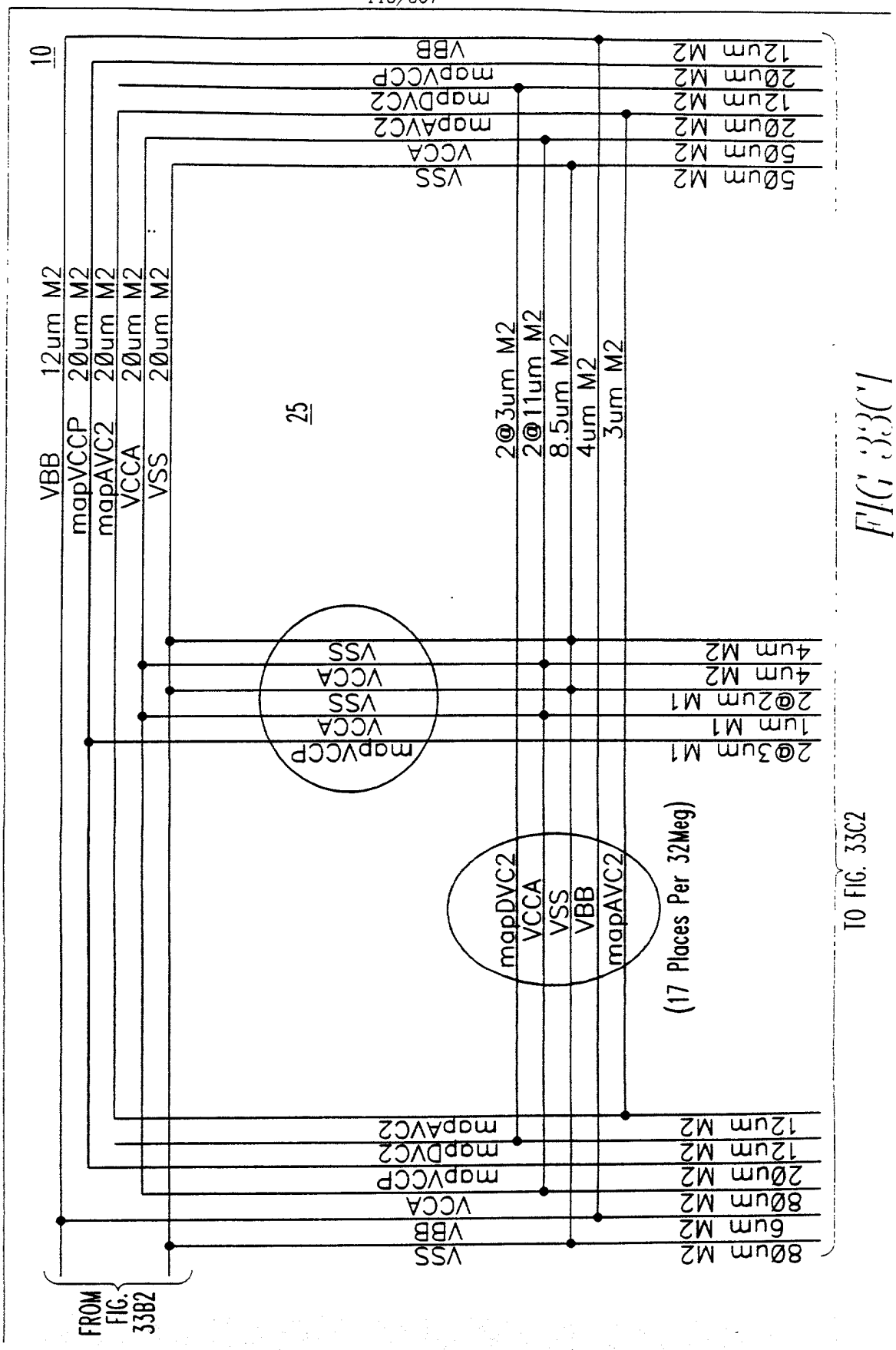
10
VBB 12um M2
mapVCCP 20um M2
mapAVC2 20um M2
VCCA 20um M2
VSS 20um M2
25
2@3um M2
2@11um M2
8.5um M2
4um M2
3um M2
FROM FIG. 33B2
VSS
VBB
VCCA
mapDVC2
mapVCCP
mapAVC2
VSS
VCCA
mapVCCP
VSS
VCCA
VSS
mapVCCP
mapAVC2
mapDVC2
VCCA
VSS
VBB
mapAVC2
(17 Places Per 32Meg)
80um M2
6um M2
80um M2
20um M2
12um M2
12um M2
2@3um M1
1um M1
2@2um M1
4um M2
4um M2
VSS
VCCA
VSS
VCCA
VBB
50um M2
20um M2
12um M2
20um M2
50um M2
VSS
VCCA
mapAVC2
mapDVC2
mapVCCP
VBB
12um M2
TO FIG. 33C2

FIG. 33C1

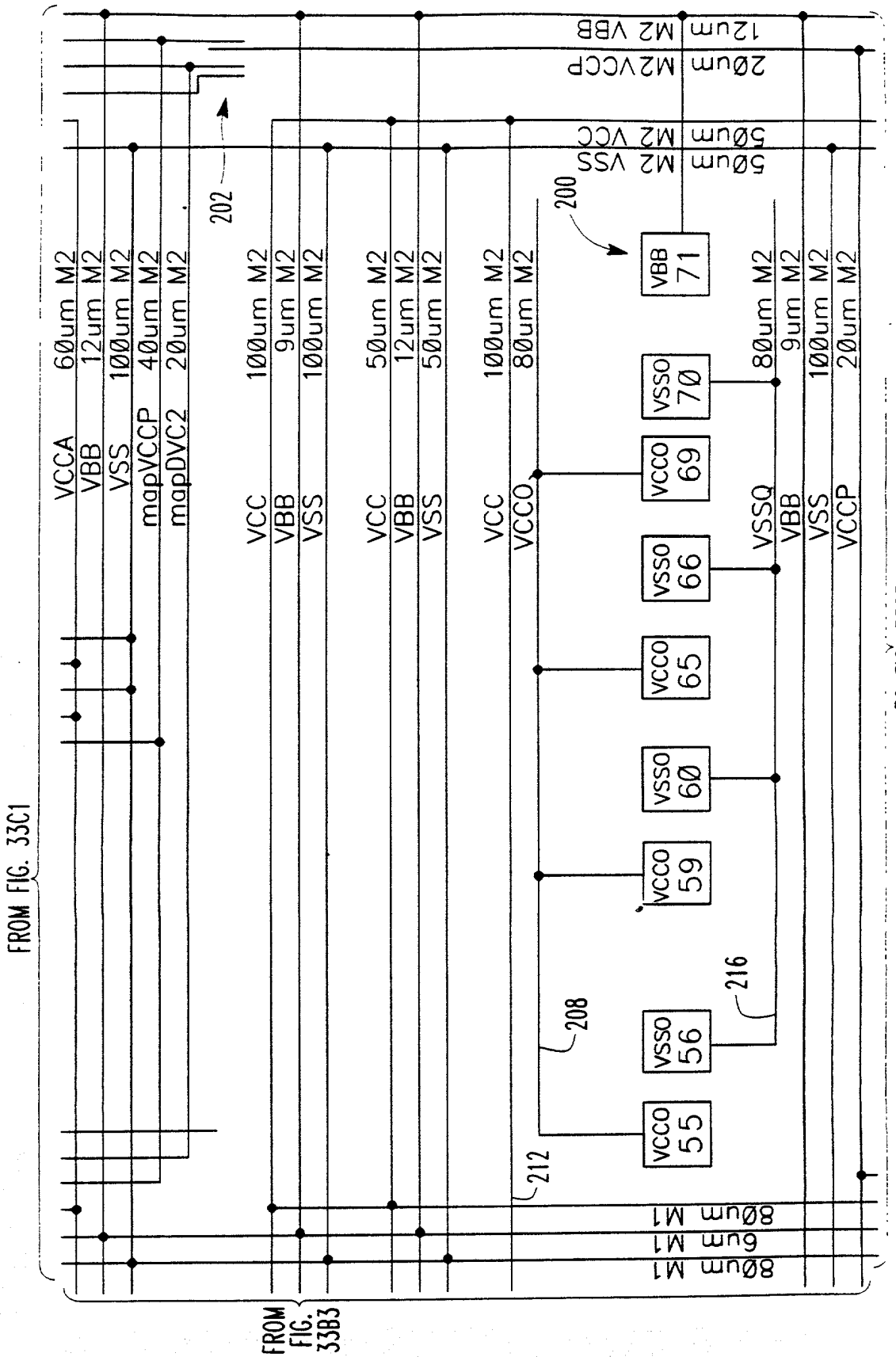
FROM FIG. 33C1
FROM FIG. 33B3
TO FIG. 33C3
VCCA 60um M2
VBB 12um M2
VSS 100um M2
mapVCCP 40um M2
mapDVC2 20um M2
202
200
VCC 100um M2
VBB 9um M2
VSS 100um M2
VCC 50um M2
VBB 12um M2
VSS 50um M2
VCC 100um M2
VCCO 80um M2
50um M2 VSS
50um M2 VCC
20um M2VCCP
12um M2 VBB
VBB 71
VSSO 70
VCCO 69
VSSO 66
VCCO 65
VSSO 60
VCCO 59
VSSO 56
VCCO 55
208
212
216
VSSQ
VBB 80um M2
VSS 9um M2
VCCP 100um M2
20um M2
80um M1
6um M1
80um M1

FIG. 33C2

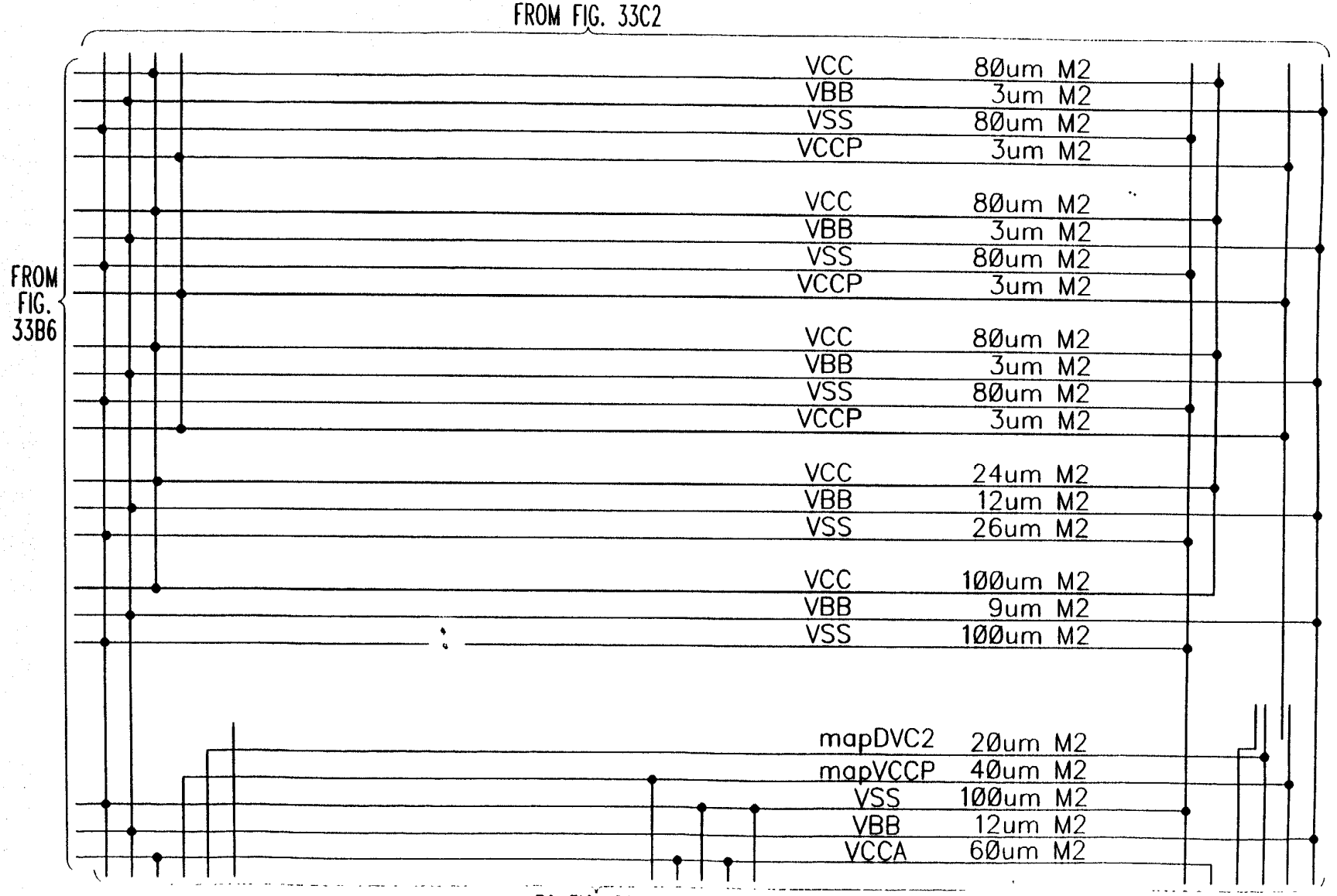
FROM FIG. 33C2
FROM FIG. 33B6
VCC 80um M2
VBB 3um M2
VSS 80um M2
VCCP 3um M2
VCC 80um M2
VBB 3um M2
VSS 80um M2
VCCP 3um M2
VCC 80um M2
VBB 3um M2
VSS 80um M2
VCCP 3um M2
VCC 24um M2
VBB 12um M2
VSS 26um M2
VCC 100um M2
VBB 9um M2
VSS 100um M2
mapDVC2 20um M2
mapVCCP 40um M2
VSS 100um M2
VBB 12um M2
VCCA 60um M2
TO FIG. 33C4

FIG 33C3

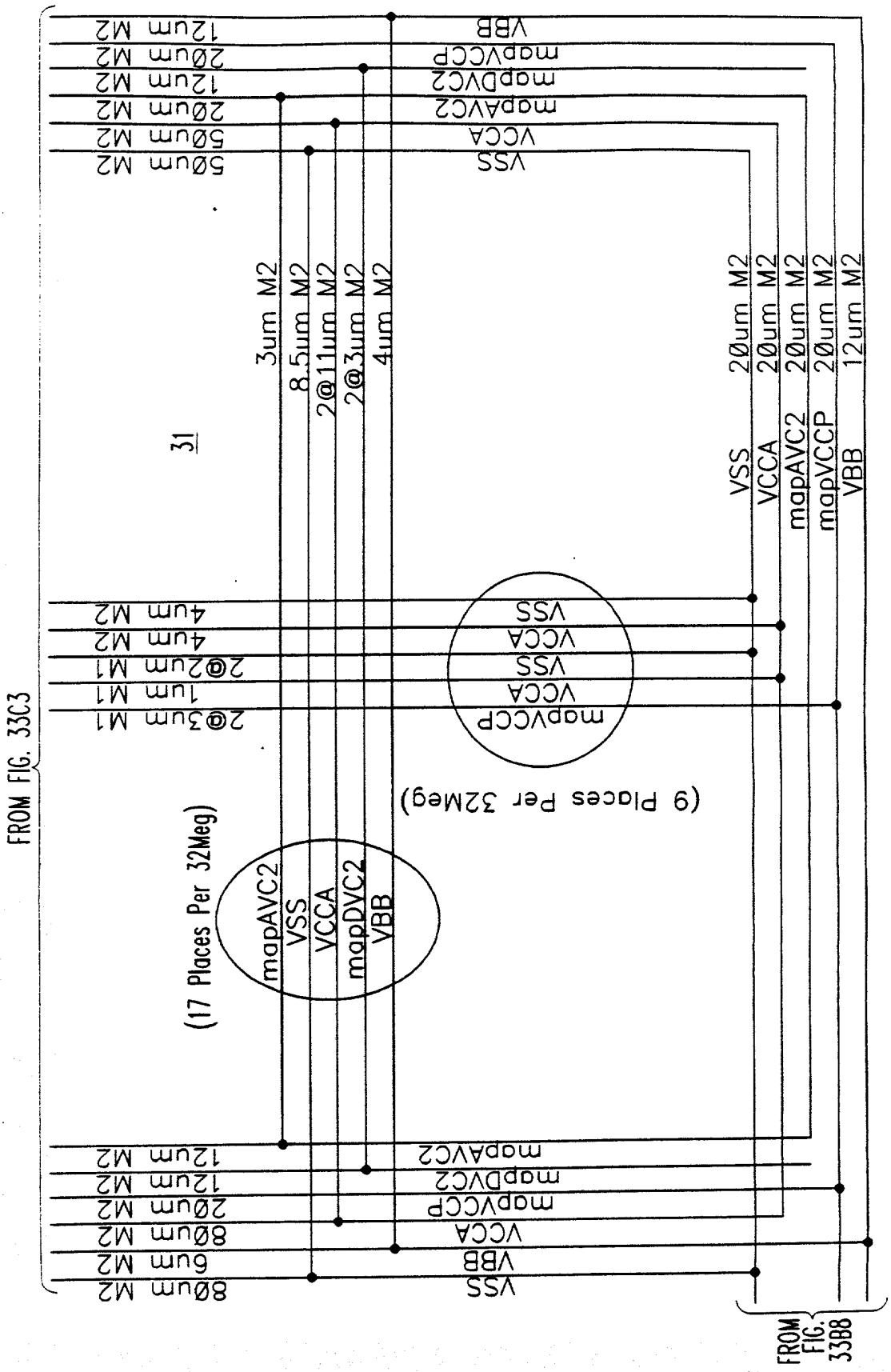
FROM FIG. 33C3
80um M2
6um M2
80um M2
20um M2
12um M2
12um M2
mapAVC2
mapDVC2
mapVCCP
VCCA
VBB
VSS
(9 Places Per 32Meg)
2@3um M1
1um M1
2@2um M1
4um M2
4um M2
4um M2
VSS
VCCA
VSS
VCCA
mapVCCP
(17 Places Per 32Meg)
mapAVC2
VSS
VCCA
mapDVC2
VBB
31
3um M2
8.5um M2
2@11um M2
2@3um M2
4um M2
20um M2
20um M2
20um M2
20um M2
12um M2
VSS
VCCA
mapAVC2
mapVCCP
VBB
50um M2
50um M2
20um M2
12um M2
20um M2
mapAVC2
mapDVC2
mapVCCP
VBB
FROM FIG. 33B8

FIG. 33C4

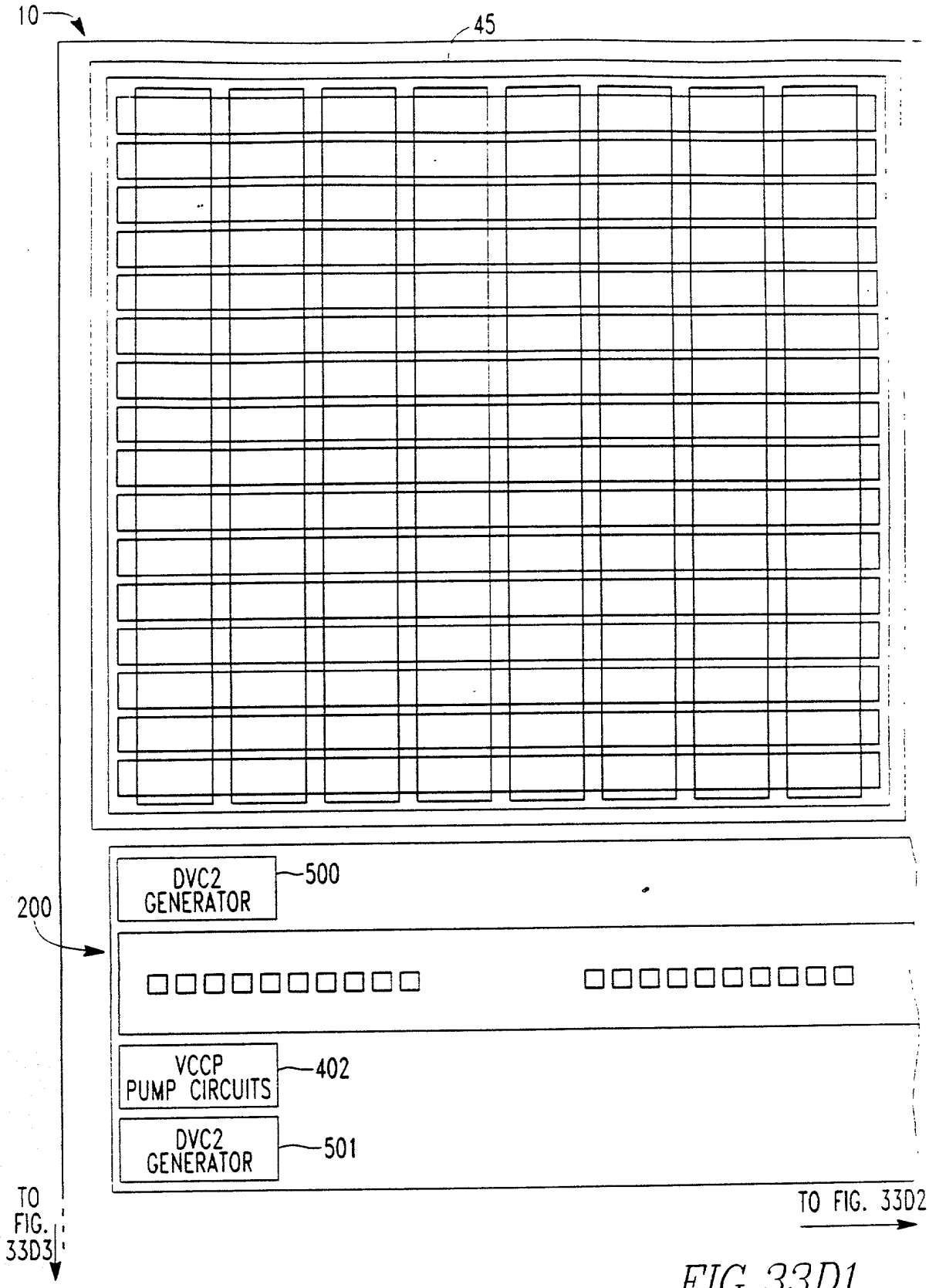
10
45
DVC2 GENERATOR
500
200
VCCP PUMP CIRCUITS
402
DVC2 GENERATOR
501
TO FIG. 33D3
TO FIG. 33D2

FIG. 33D1

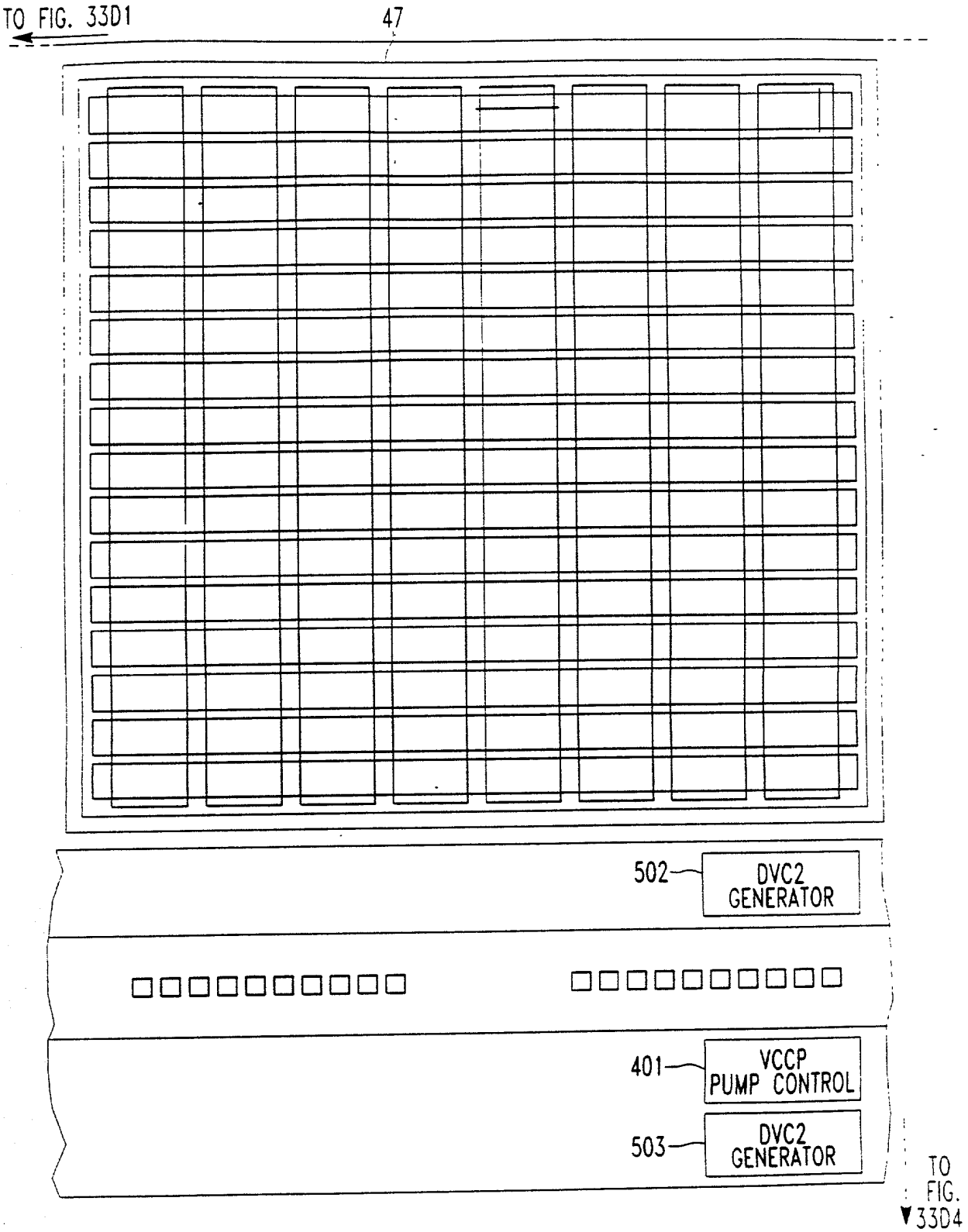
TO FIG. 33D1
47
502
DVC2 GENERATOR
401
VCCP PUMP CONTROL
503
DVC2 GENERATOR
TO FIG. 33D4

FIG. 33D2

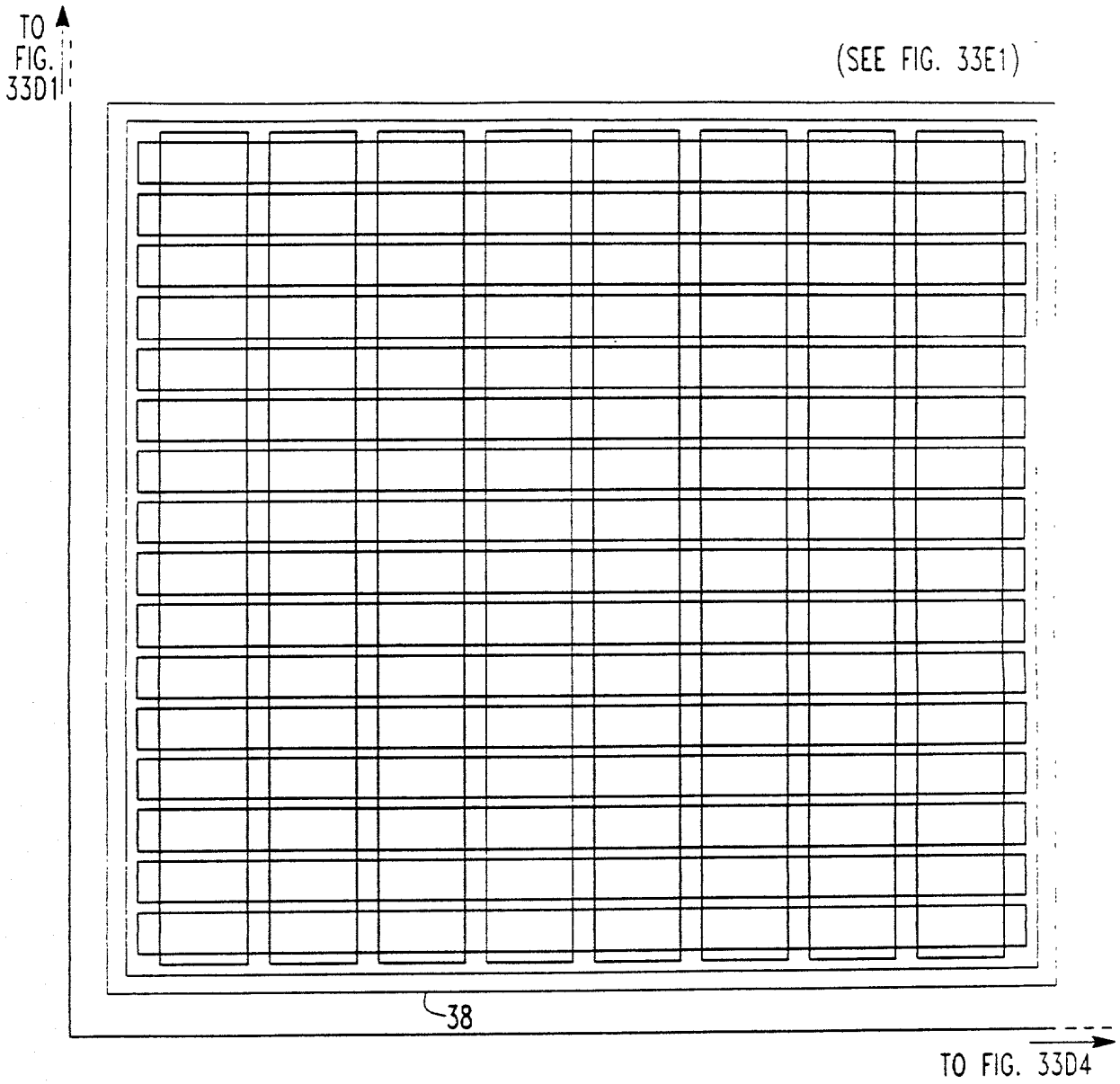

FIG. 33D3

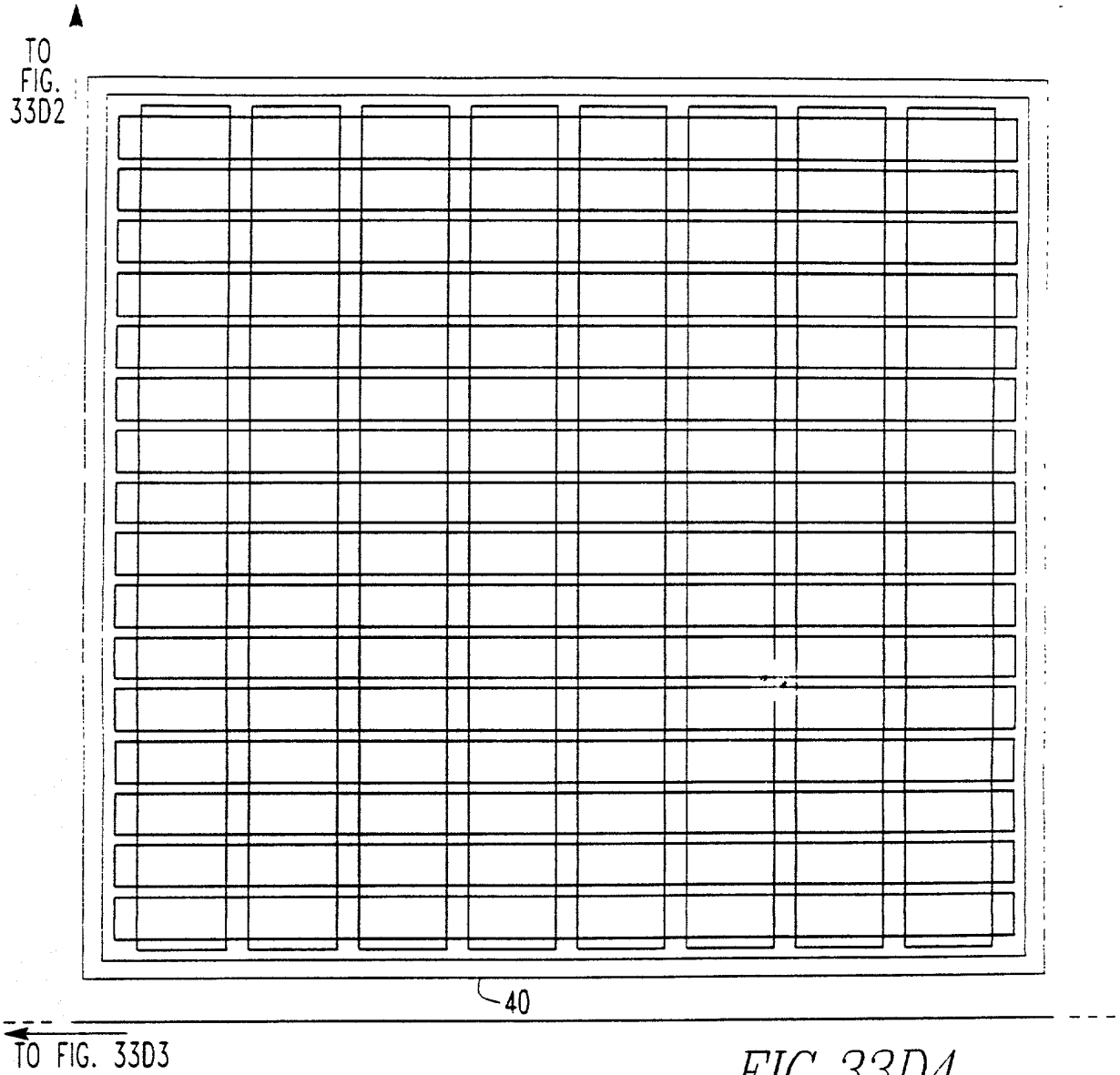

FIG. 33D4

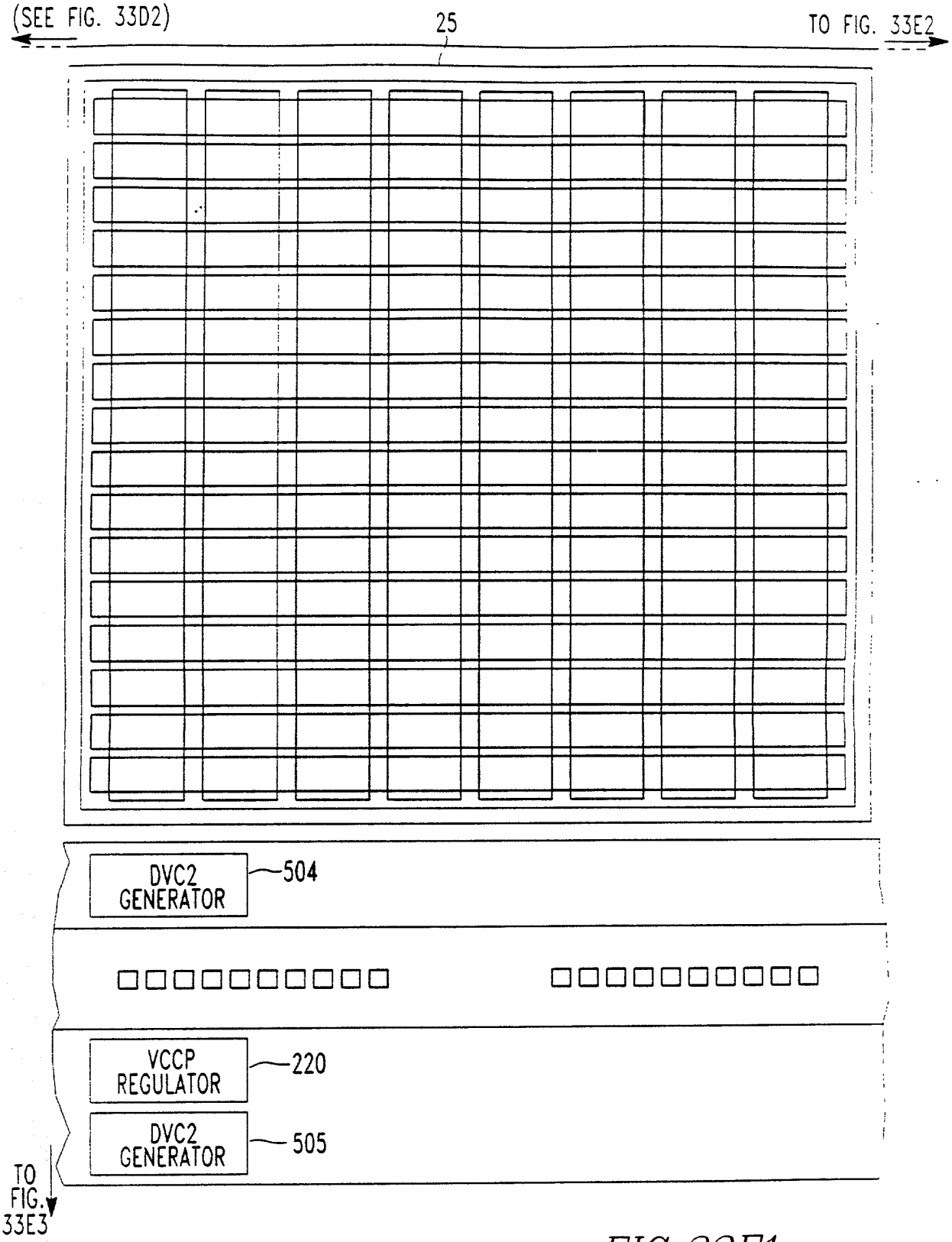
(SEE FIG. 33D2)
25
TO FIG. 33E2
DVC2 GENERATOR
504
VCCP REGULATOR
220
DVC2 GENERATOR
505
TO FIG. 33E3

FIG. 33E1

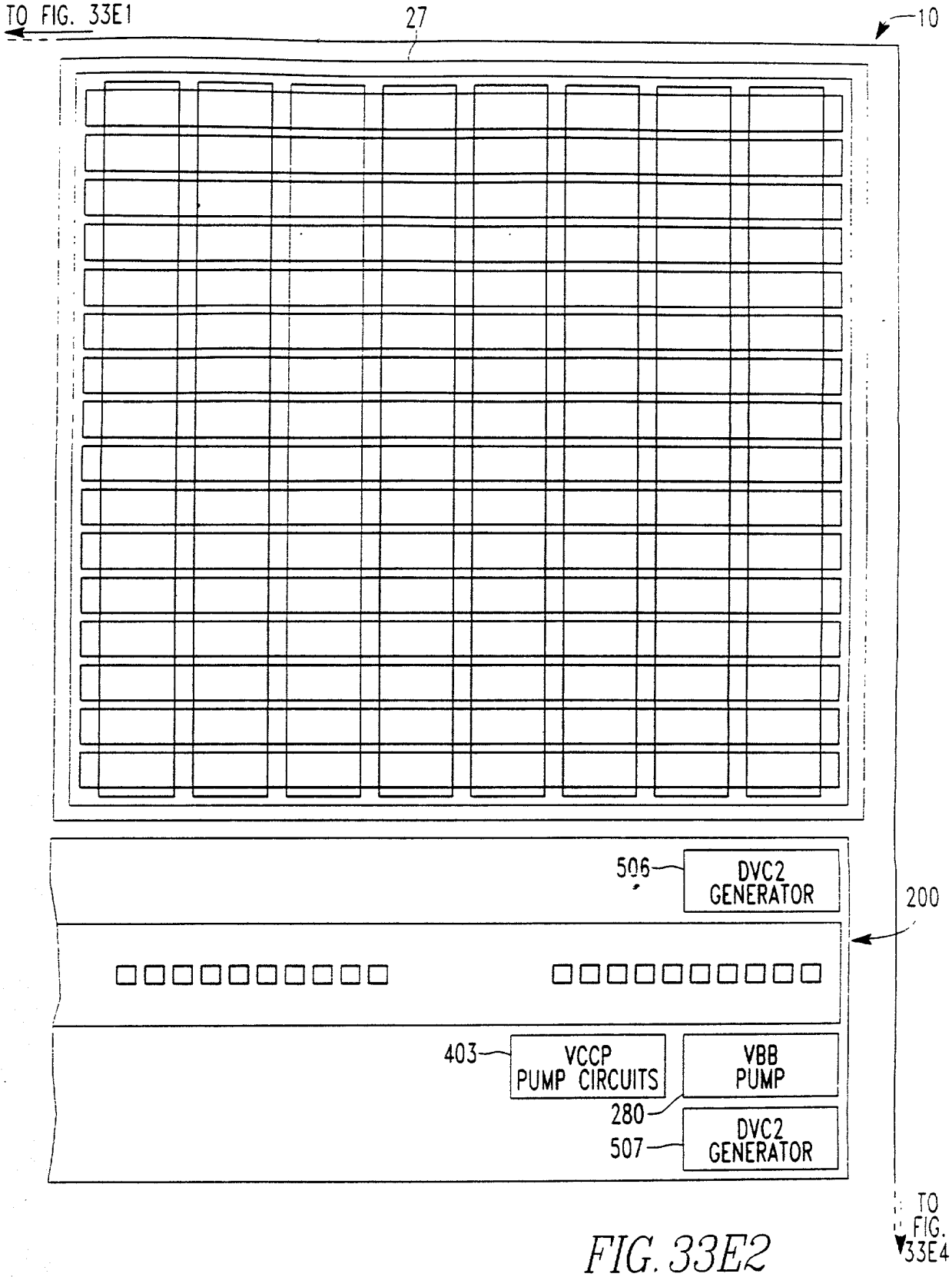
TO FIG. 33E1
27
10
506
DVC2 GENERATOR
200
403
VCCP PUMP CIRCUITS
VBB PUMP
280
507
DVC2 GENERATOR
TO FIG. 33E4

FIG. 33E2

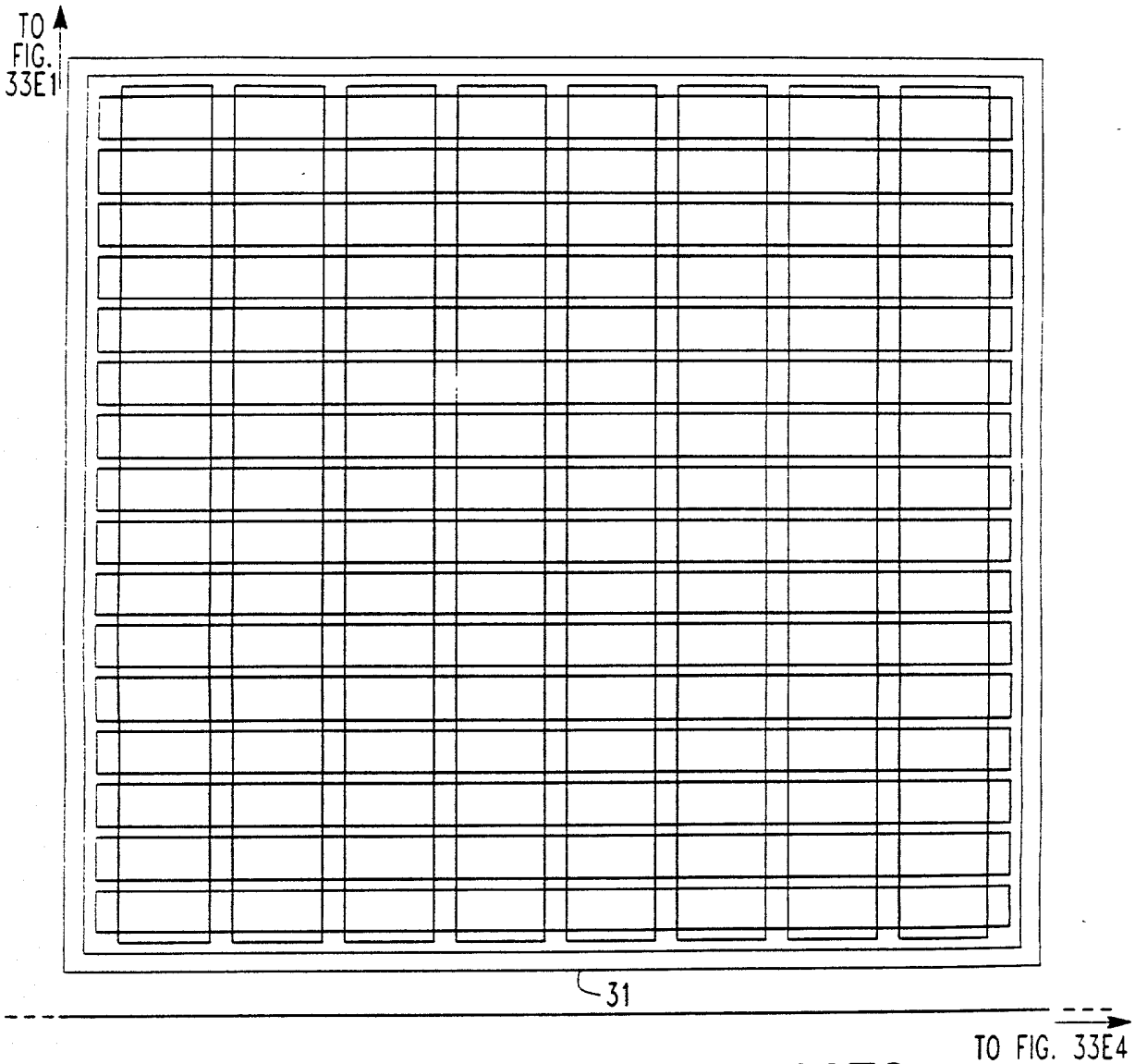

FIG. 33E3

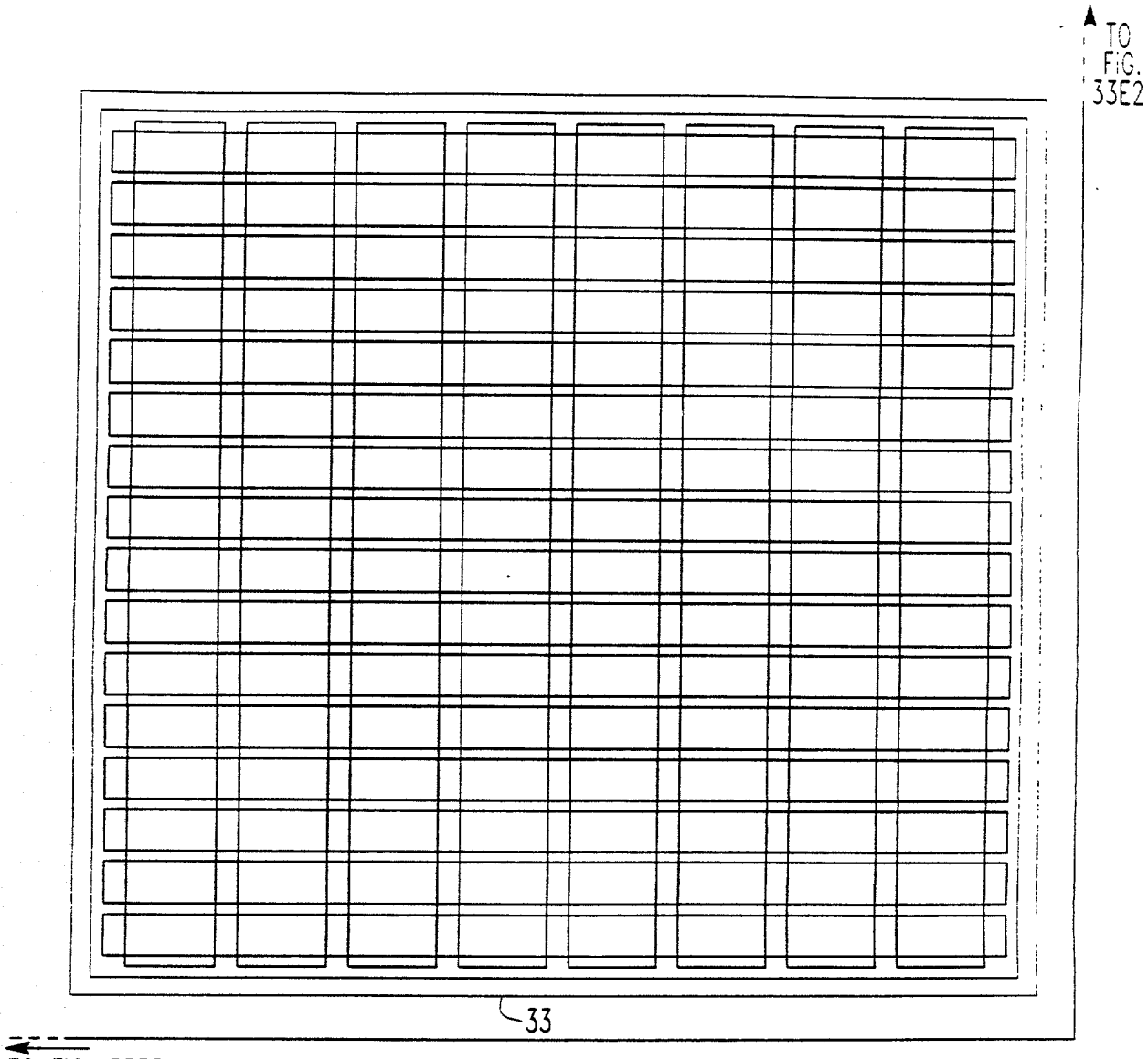

FIG. 33E4

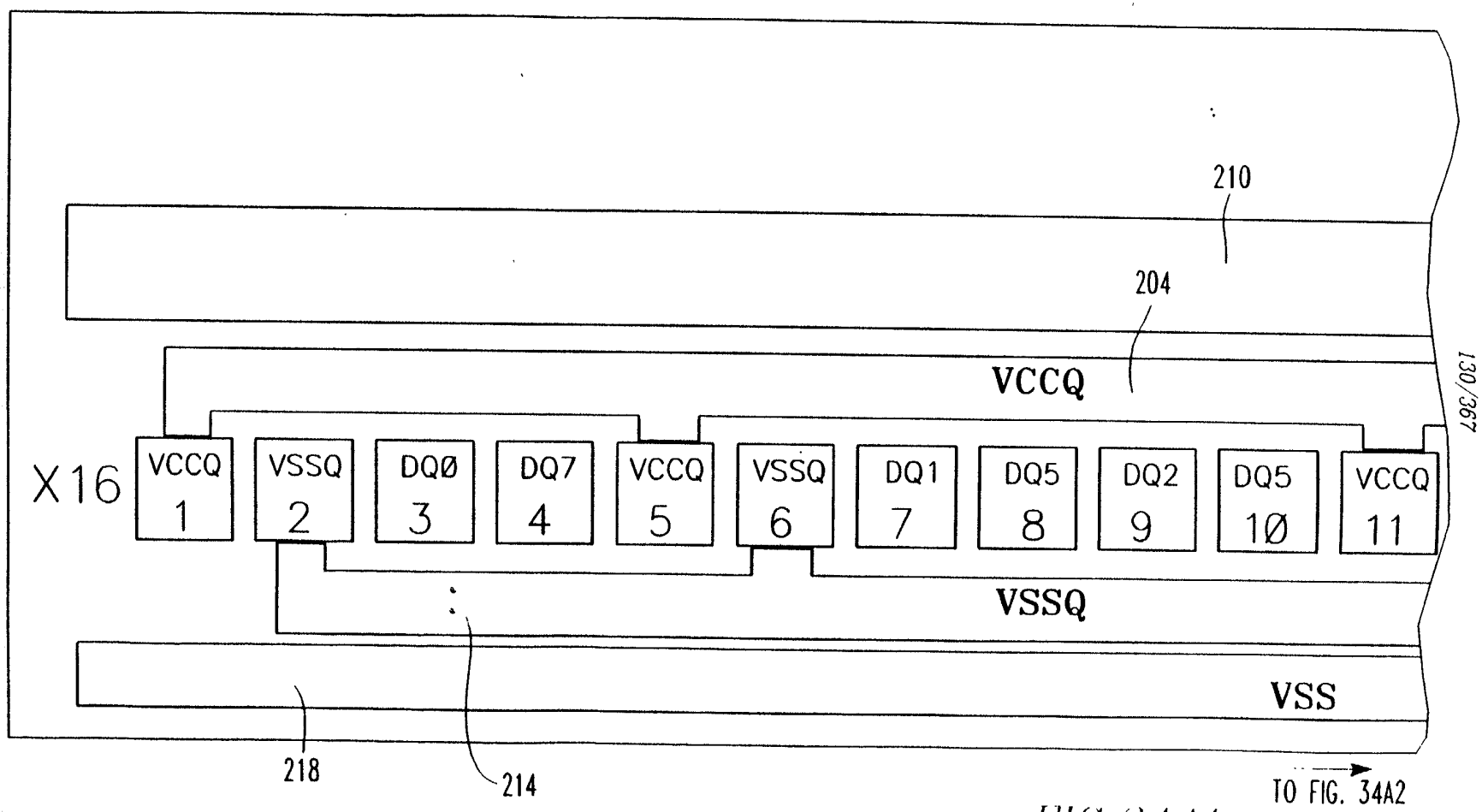
210
204
VCCQ
X16
VCCQ 1
VSSQ 2
DQ0 3
DQ7 4
VCCQ 5
VSSQ 6
DQ1 7
DQ5 8
DQ2 9
DQ5 10
VCCQ 11
VSSQ
VSS
218
214
TO FIG. 34A2
130/367

FIG. 34A1

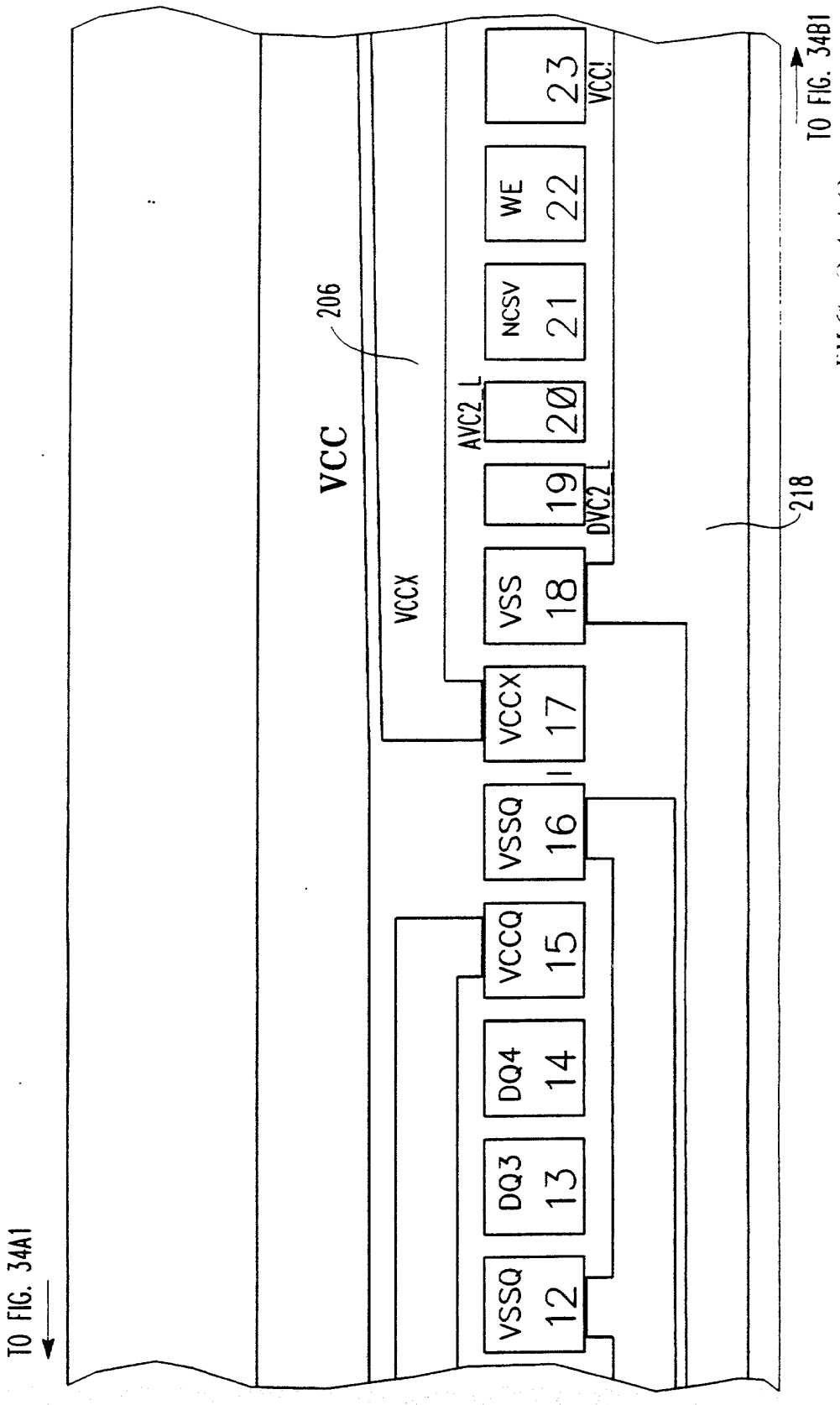
TO FIG. 34A1
VSSQ 12
DQ3 13
DQ4 14
VCCQ 15
VSSQ 16
VCCX 17
VSS 18
19
DVC2_L
AVC2_L
20
NCSV 21
WE 22
23
VCC!
VCC
206
VCCX
218
TO FIG. 34B1

FIG. 34A2

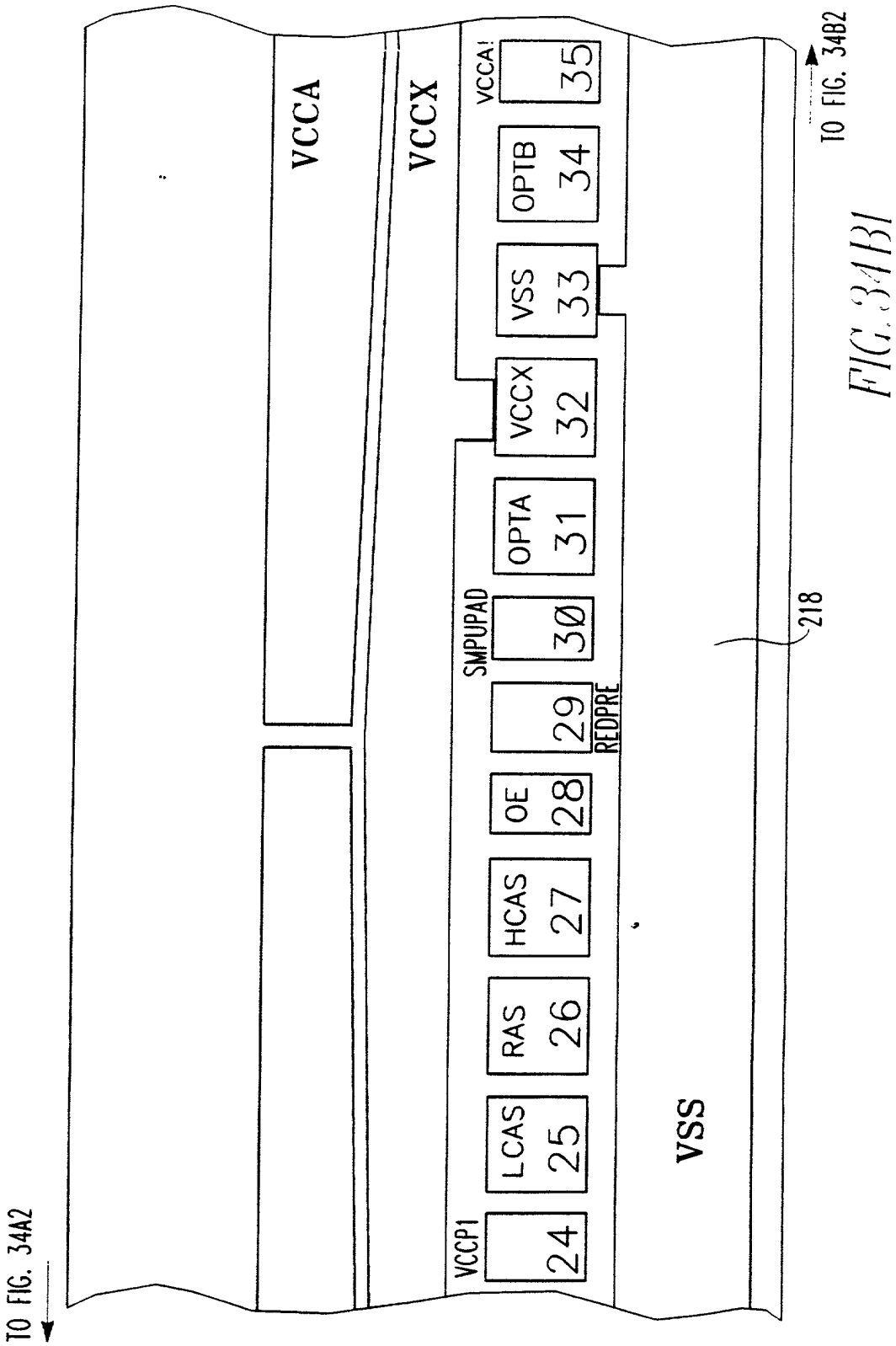
TO FIG. 34A2
VCCA
VCCX
VCCA1
VCCP1
24
LCAS
25
RAS
26
HCAS
27
OE
28
29
REDPRE
SMPUPAD
30
OPTA
31
VCCX
32
VSS
33
OPTB
34
35
VSS
218
TO FIG. 34B2

FIG. 34B1

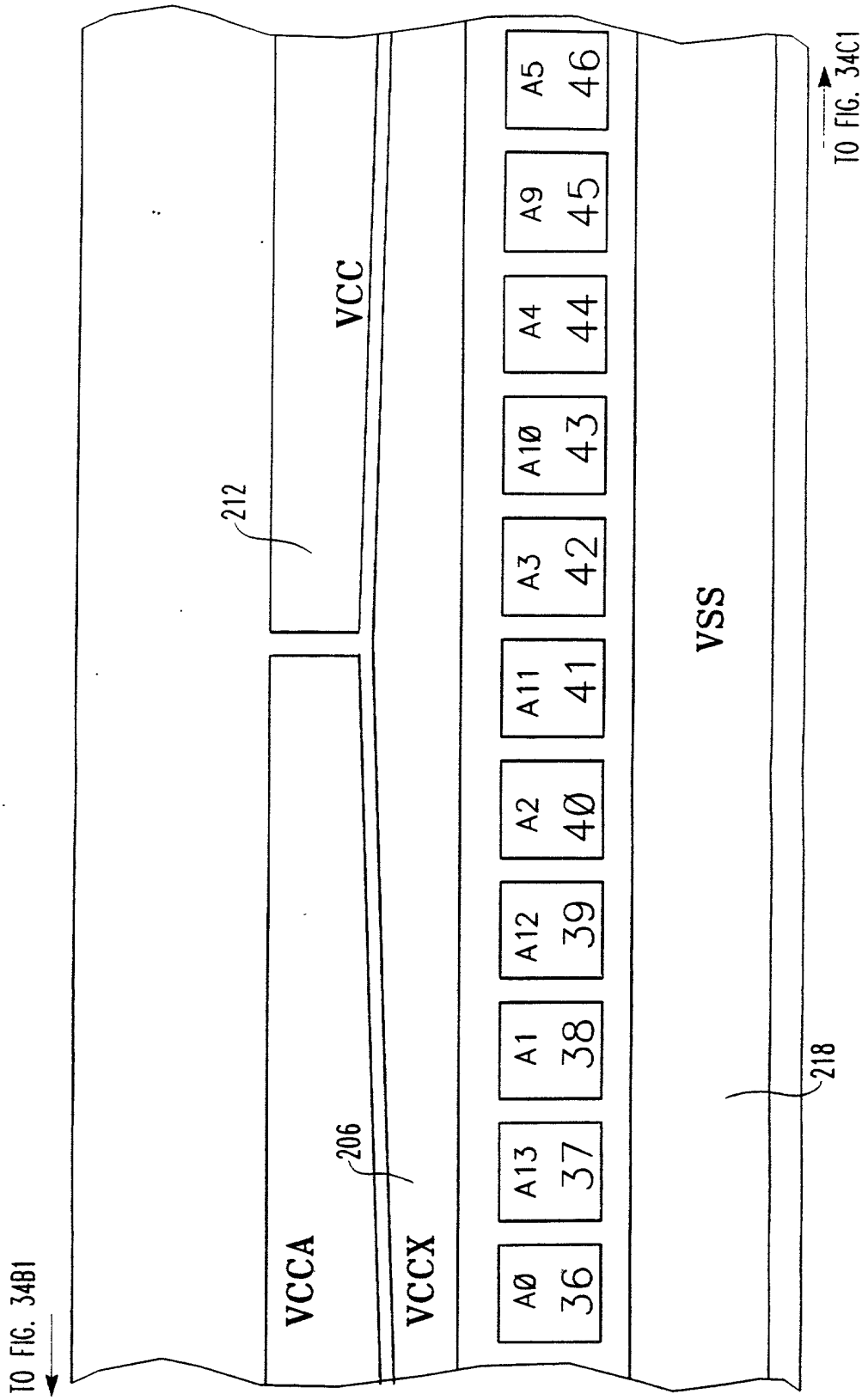
TO FIG. 34B1
VCCA
VCCX
206
212
VCC
VSS
218
A0 36
A13 37
A1 38
A12 39
A2 40
A11 41
A3 42
A10 43
A4 44
A9 45
A5 46
TO FIG. 34C1

FIG 34B2

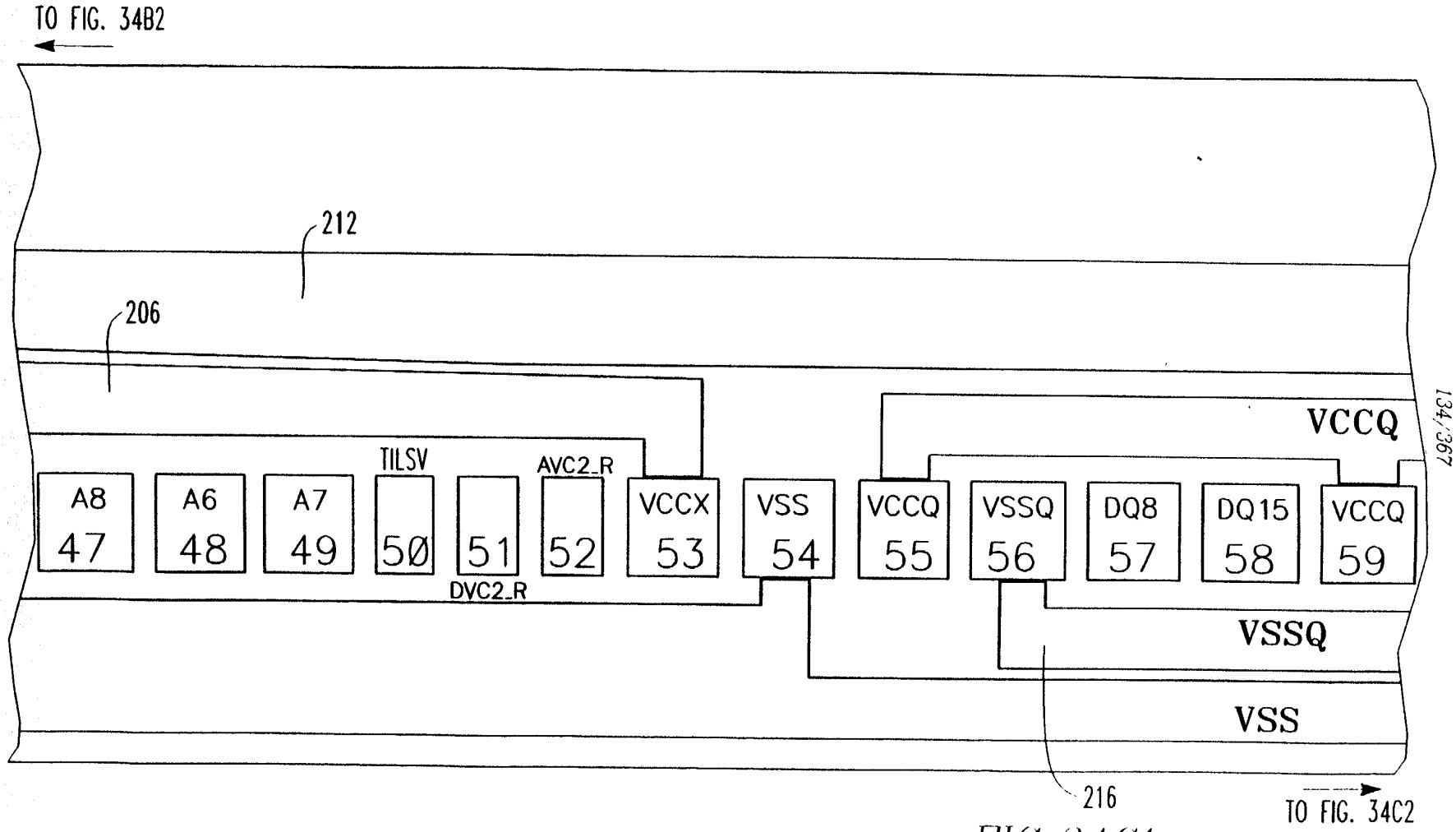
TO FIG. 34B2
212
206
A8
47
A6
48
A7
49
TILSV
50
51
DVC2_R
AVC2_R
52
VCCX
53
VSS
54
VCCQ
55
VSSQ
56
DQ8
57
DQ15
58
VCCQ
59
VCCQ
VSSQ
VSS
216
TO FIG. 34C2

FIG. 34C1

TO FIG. 34C1

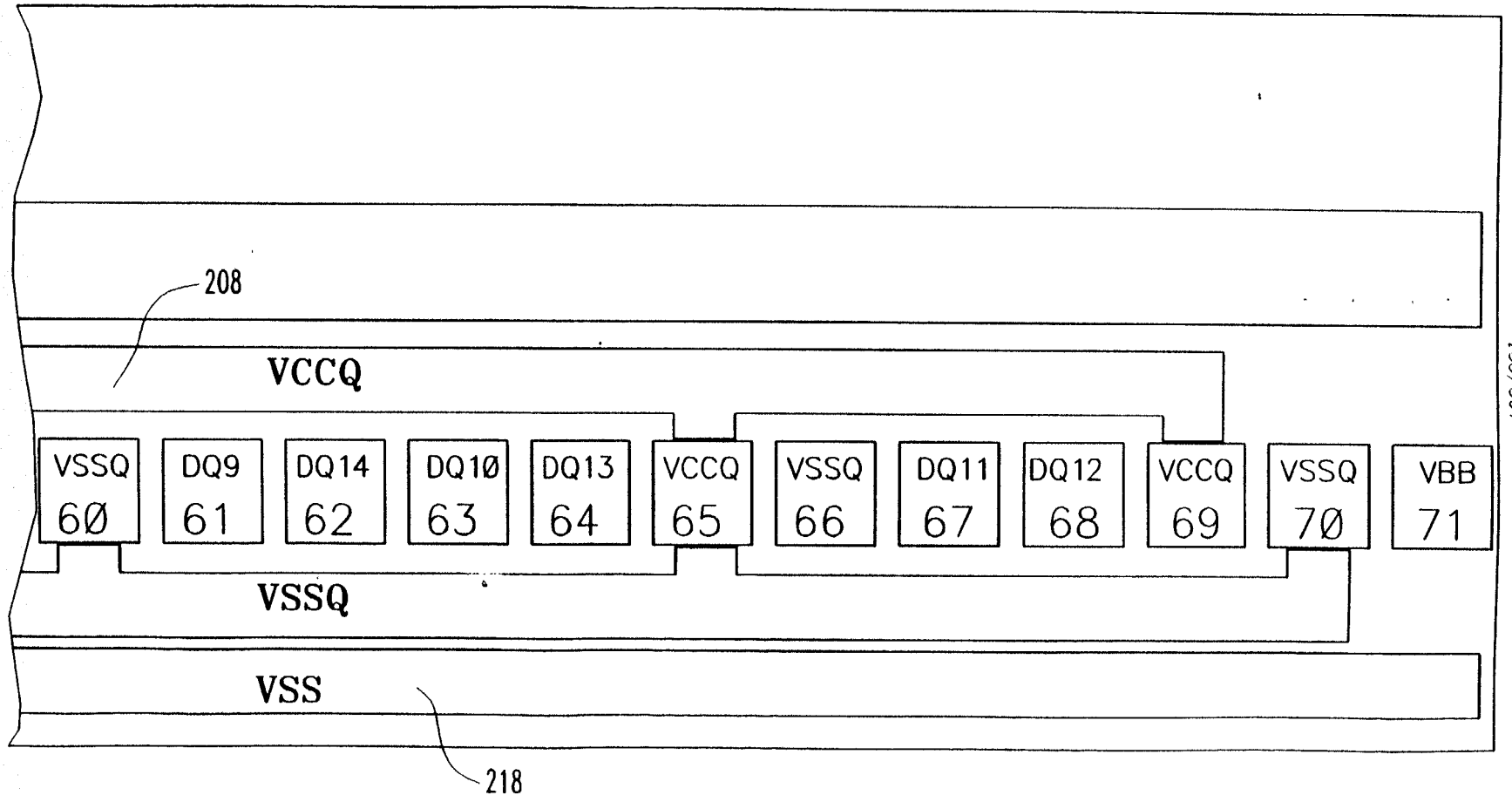

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FIG. 34C2

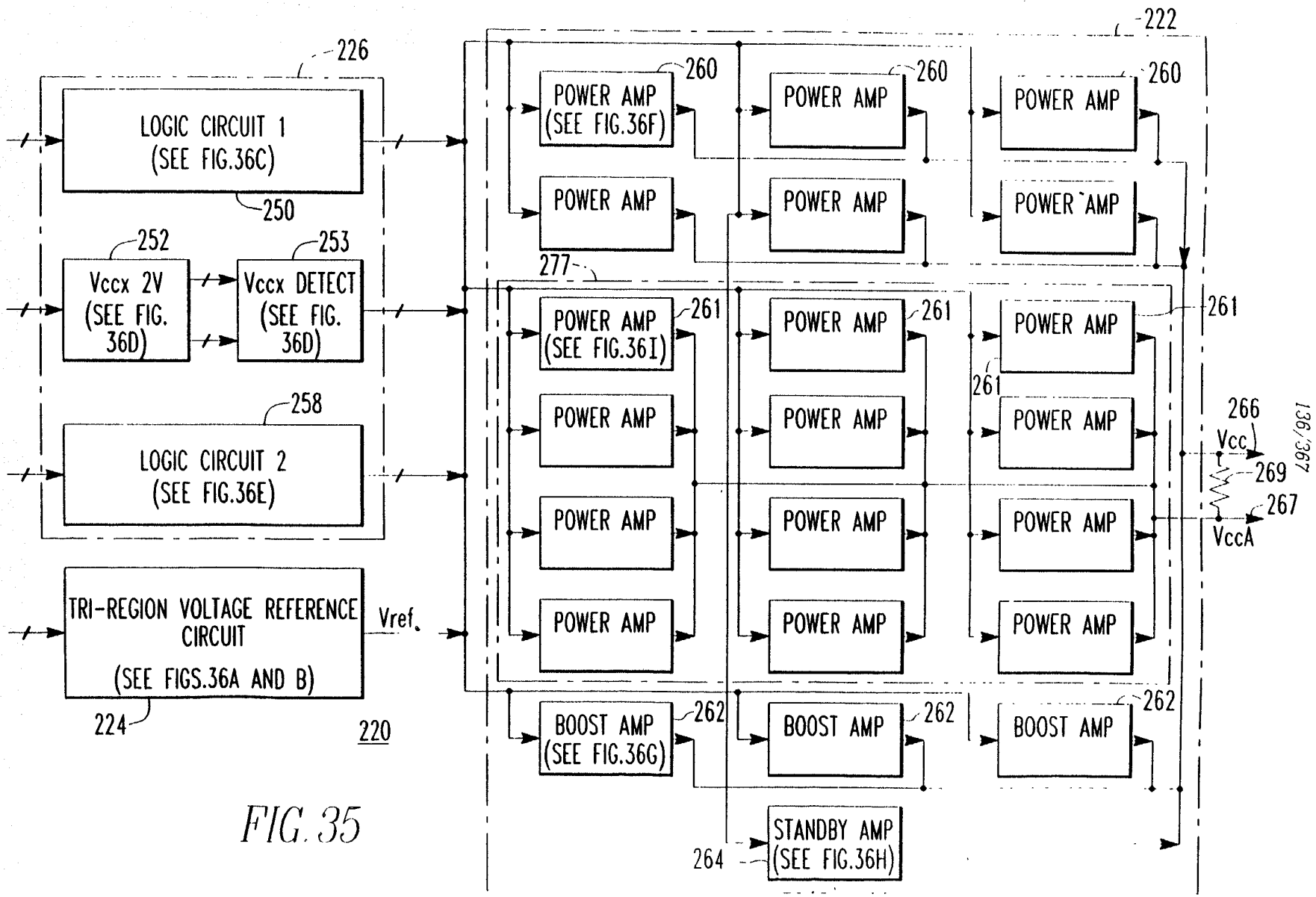
222
226
LOGIC CIRCUIT 1
(SEE FIG.36C)
250
252
Vccx 2V
(SEE FIG.
36D)
253
Vccx DETECT
(SEE FIG.
36D)
258
LOGIC CIRCUIT 2
(SEE FIG.36E)
TRI-REGION VOLTAGE REFERENCE
CIRCUIT
(SEE FIGS.36A AND B)
Vref.
224
220
260
POWER AMP
(SEE FIG.36F)
POWER AMP
277
261
POWER AMP
(SEE FIG.36I)
262
BOOST AMP
(SEE FIG.36G)
264
STANDBY AMP
(SEE FIG.36H)
266
Vcc
269
267
VccA
136/367

FIG. 35

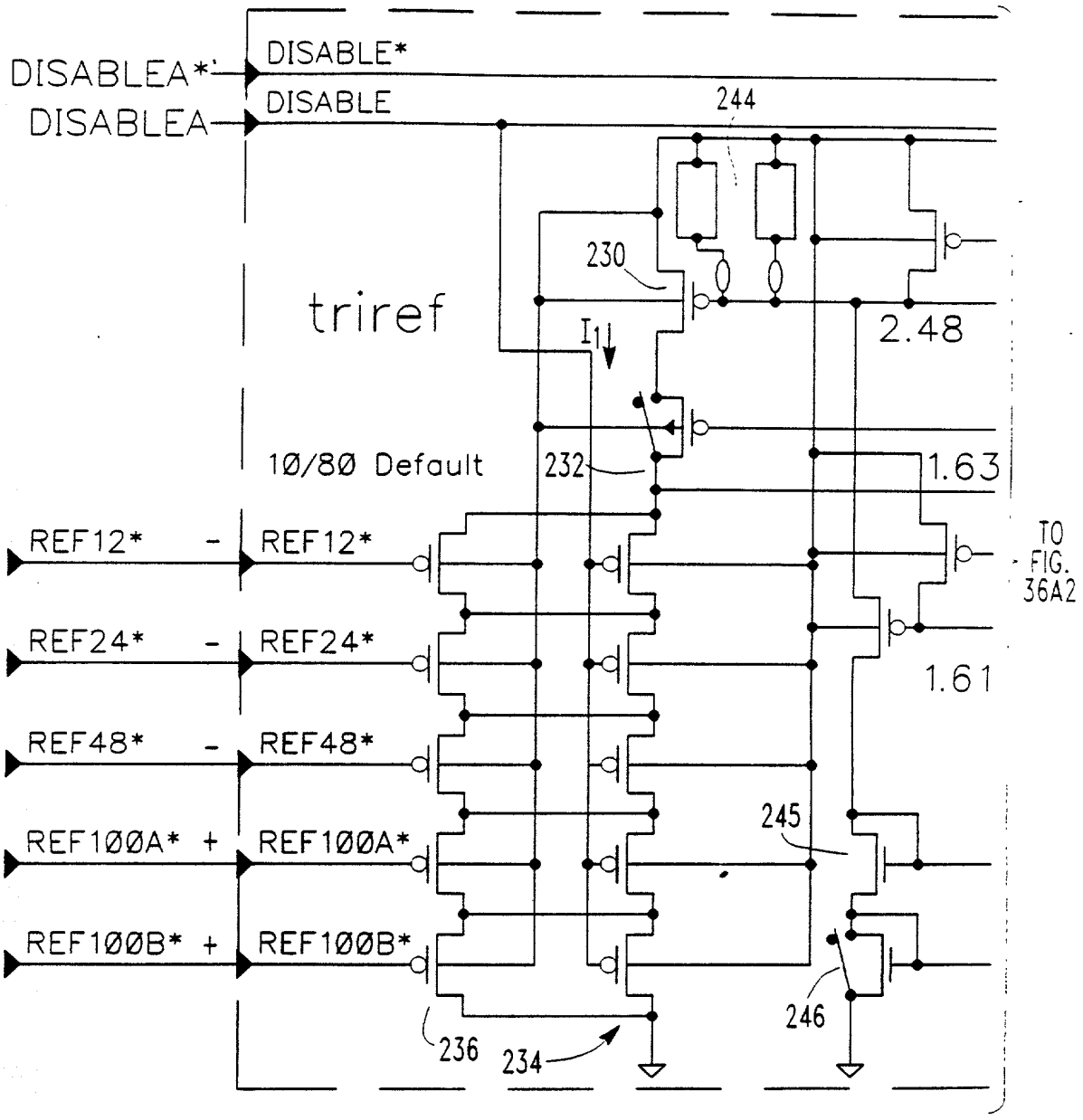
DISABLEA*
DISABLEA
DISABLE*
DISABLE
244
230
triref
I1
2.48
10/80 Default
232
1.63
REF12*
REF12*
REF24*
REF24*
1.61
REF48*
REF48*
245
REF100A*
REF100A*
REF100B*
REF100B*
246
236
234
TO FIG. 36A2

FIG. 36A1

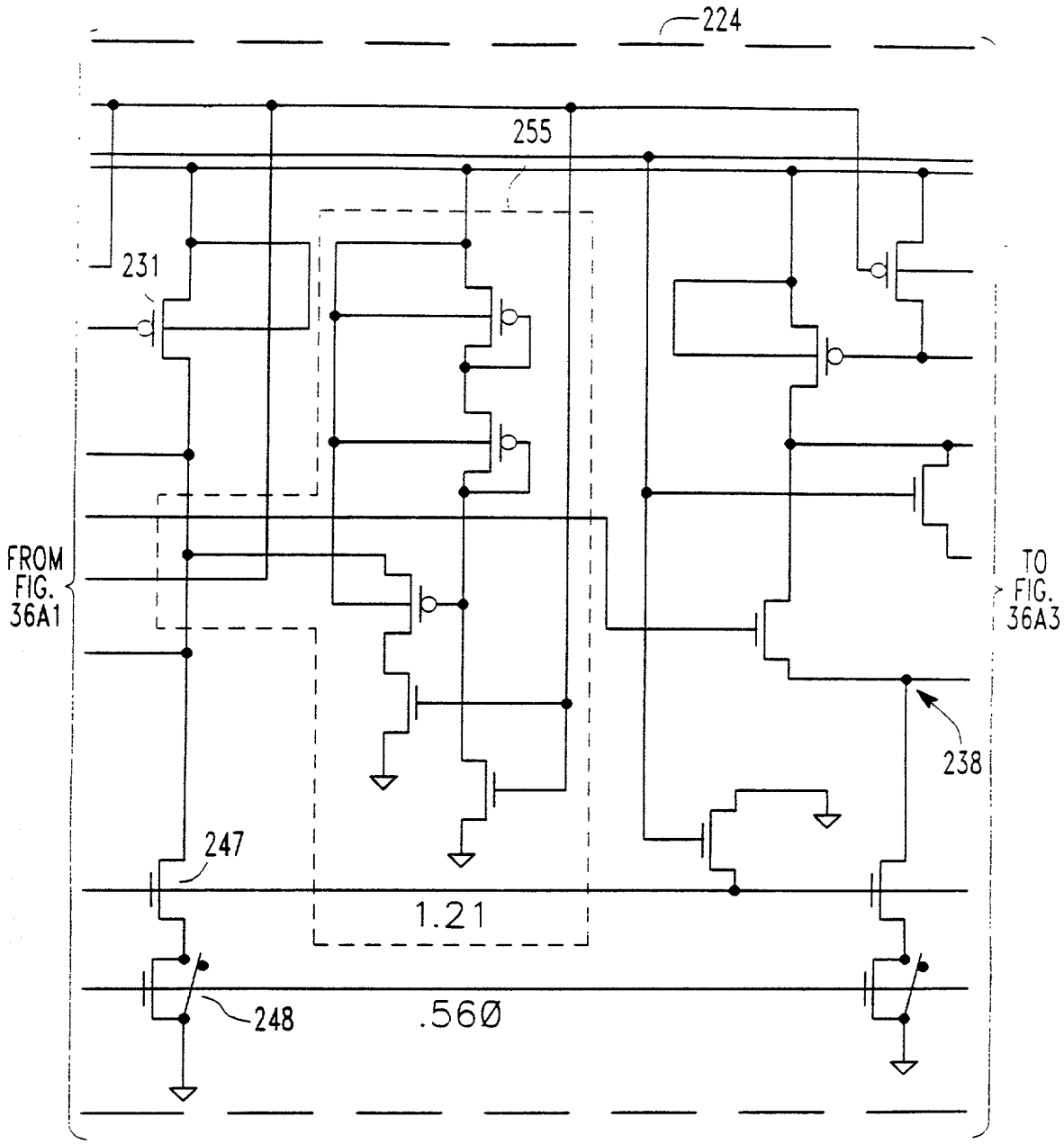

FIG. 36A2

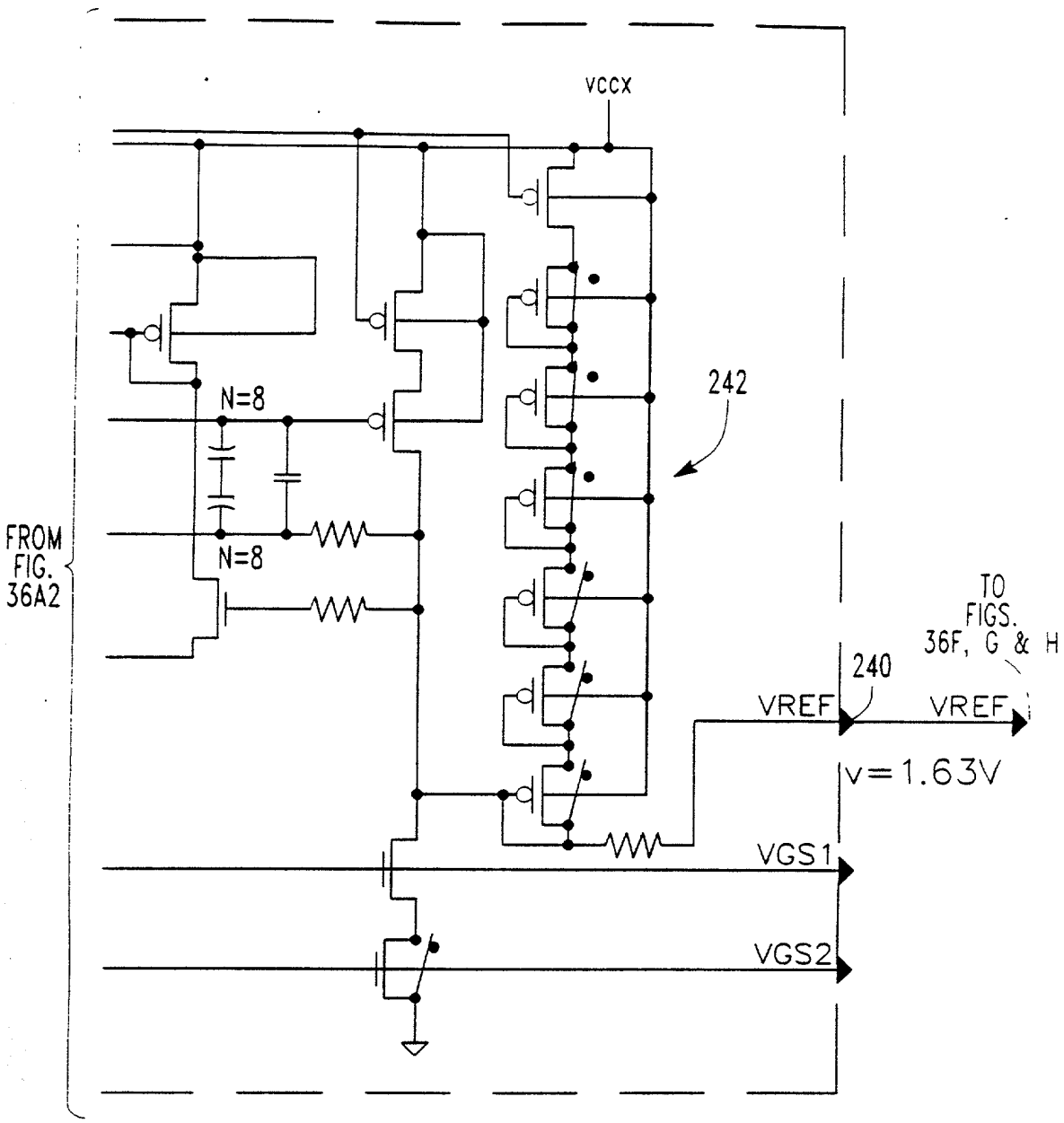
VCCX
242
N=8
N=8
FROM
FIG.
36A2
TO
FIGS.
36F, G & H
240
VREF
VREF
v=1.63V
VGS1
VGS2

FIG. 36A3

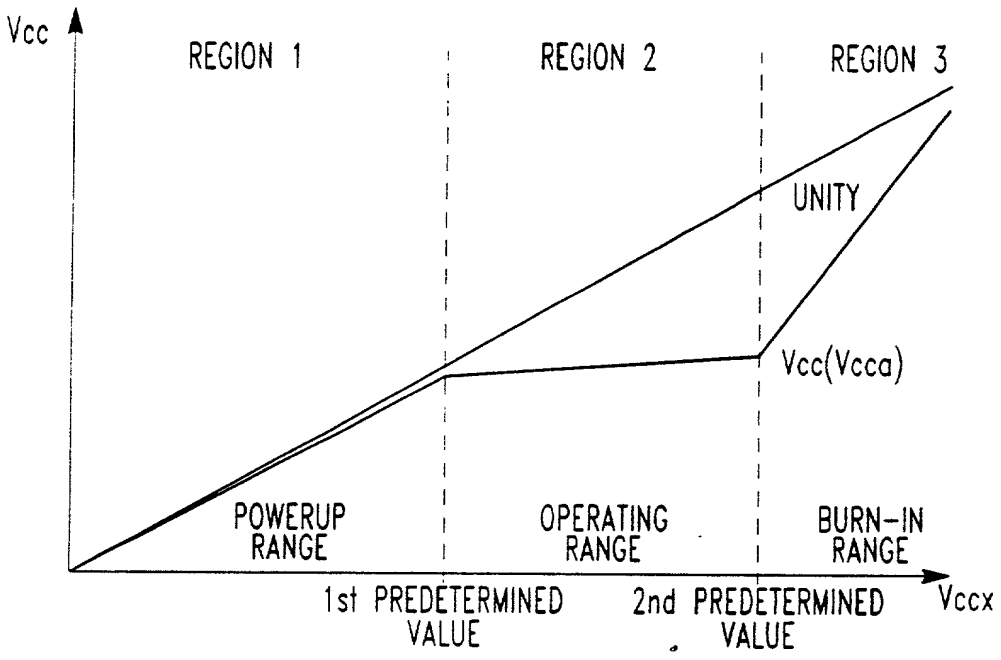
Vcc
REGION 1
REGION 2
REGION 3
UNITY
Vcc(Vcca)
POWERUP RANGE
OPERATING RANGE
BURN-IN RANGE
1st PREDETERMINED VALUE
2nd PREDETERMINED VALUE
Vccx

FIG. 36B

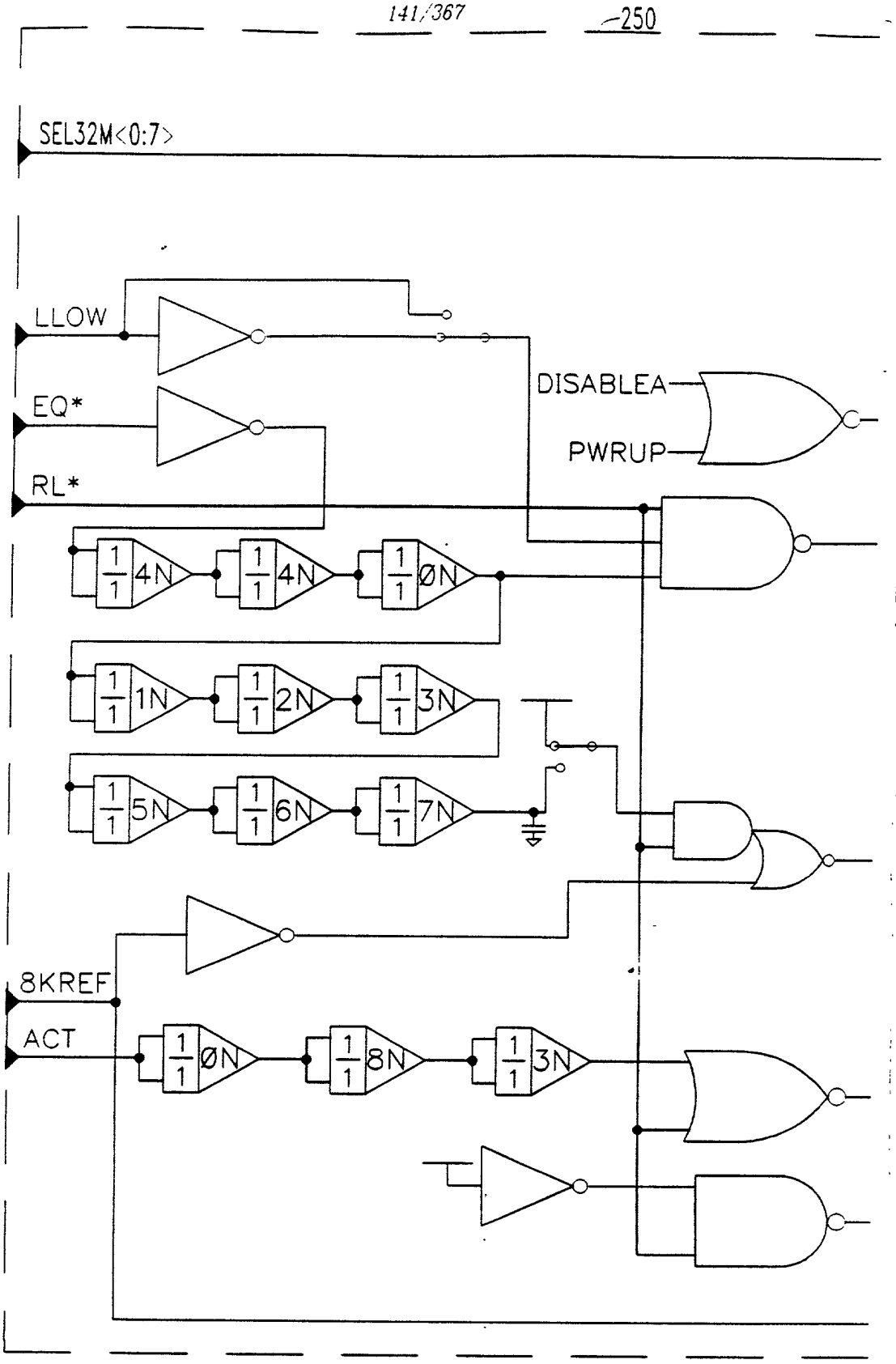
250
SEL32M<0:7>
LLOW
EQ*
RL*
DISABLEA
PWRUP
1/1 4N
1/1 4N
1/1 ØN
1/1 1N
1/1 2N
1/1 3N
1/1 5N
1/1 6N
1/1 7N
TO FIG. 36C2
8KREF
ACT
1/1 ØN
1/1 8N
1/1 3N

FIG. 36C1

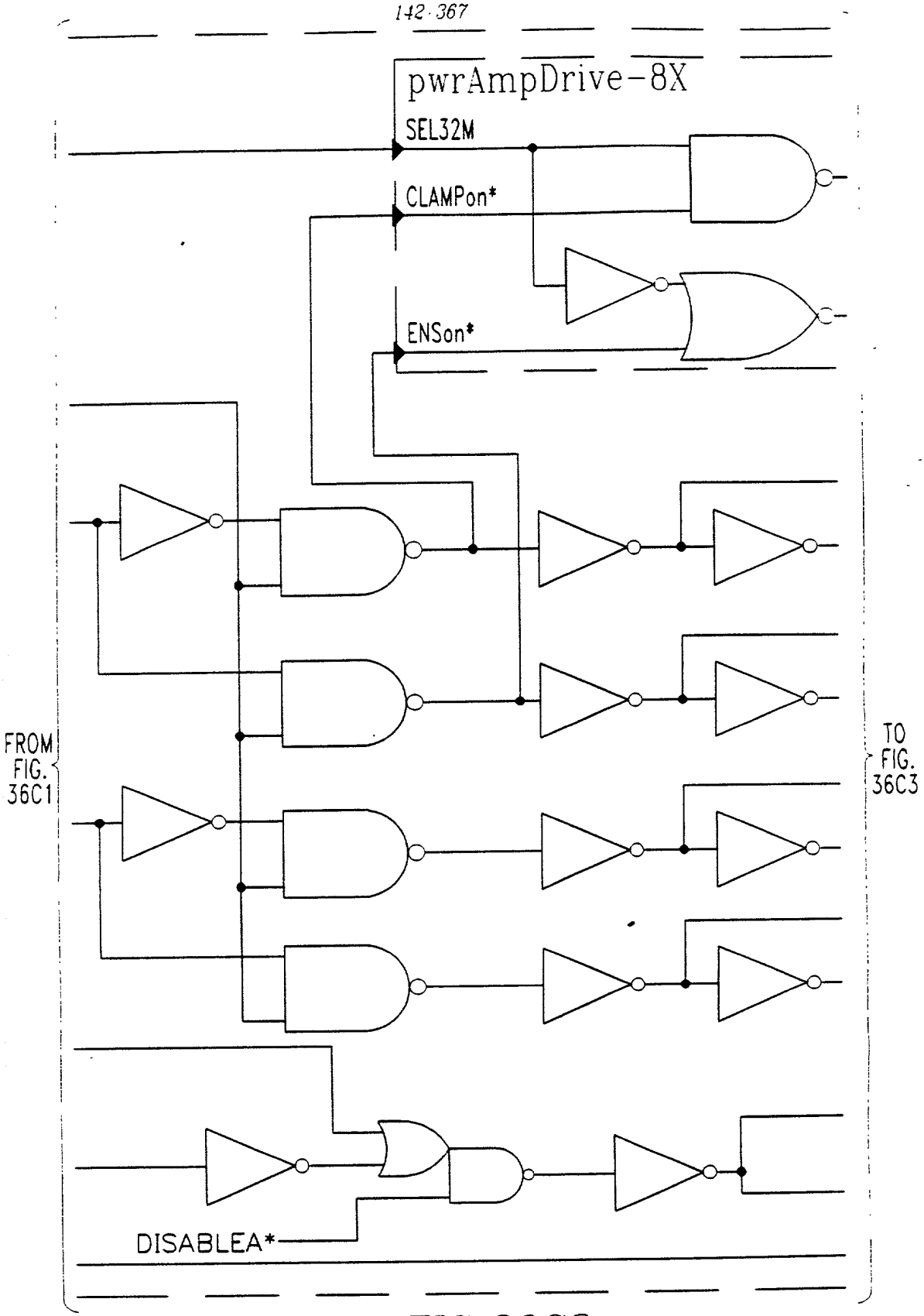
pwrAmpDrive-8X
SEL32M
CLAMPon*
ENSon*
FROM FIG. 36C1
TO FIG. 36C3
DISABLEA*

FIG. 36C2

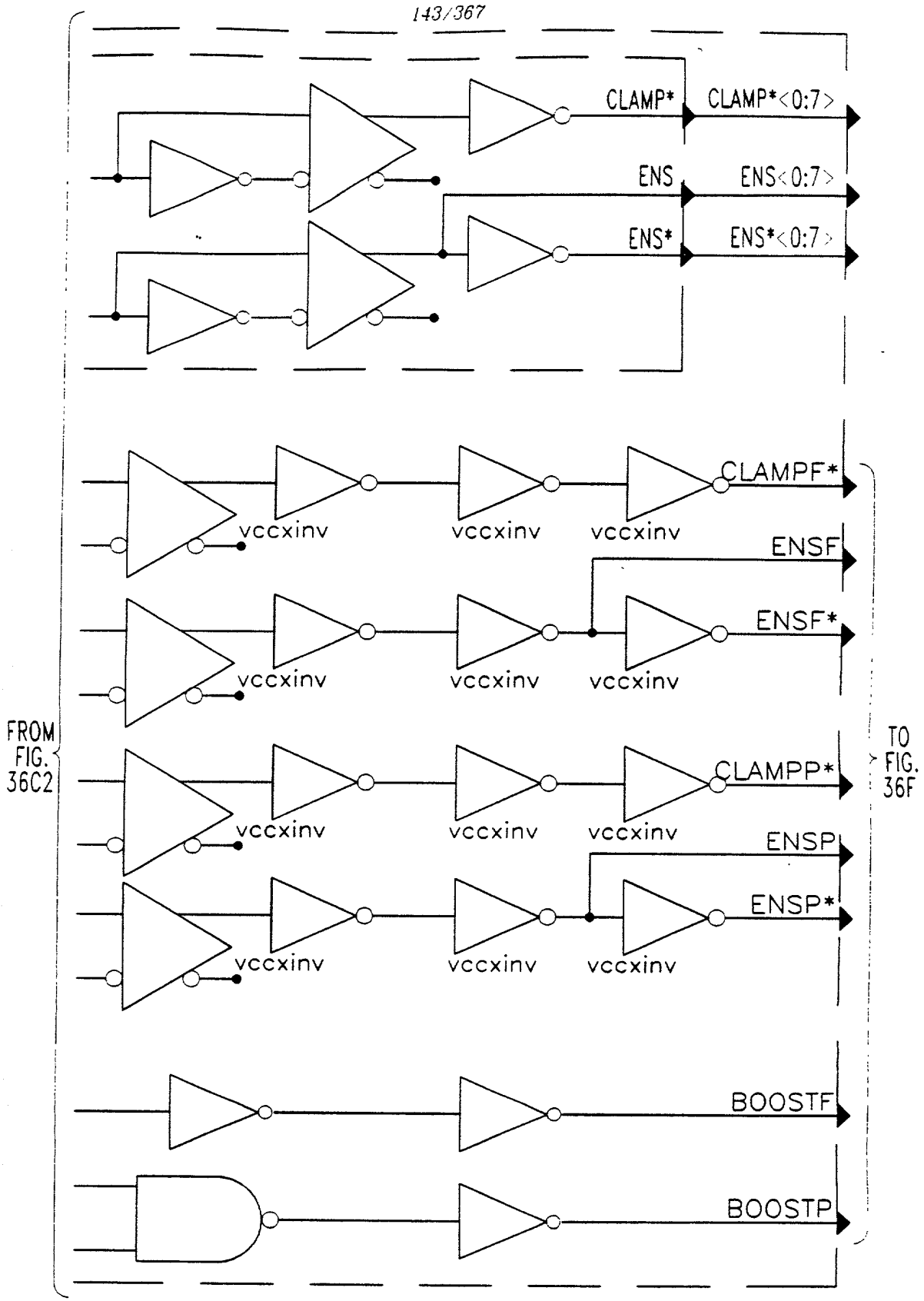
CLAMP*
CLAMP*<0:7>
ENS
ENS<0:7>
ENS*
ENS*<0:7>
FROM FIG. 36C2
vccxinv
CLAMPF*
ENSF
ENSF*
CLAMPP*
ENSP
ENSP*
TO FIG. 36F
BOOSTF
BOOSTP

FIG. 36C3

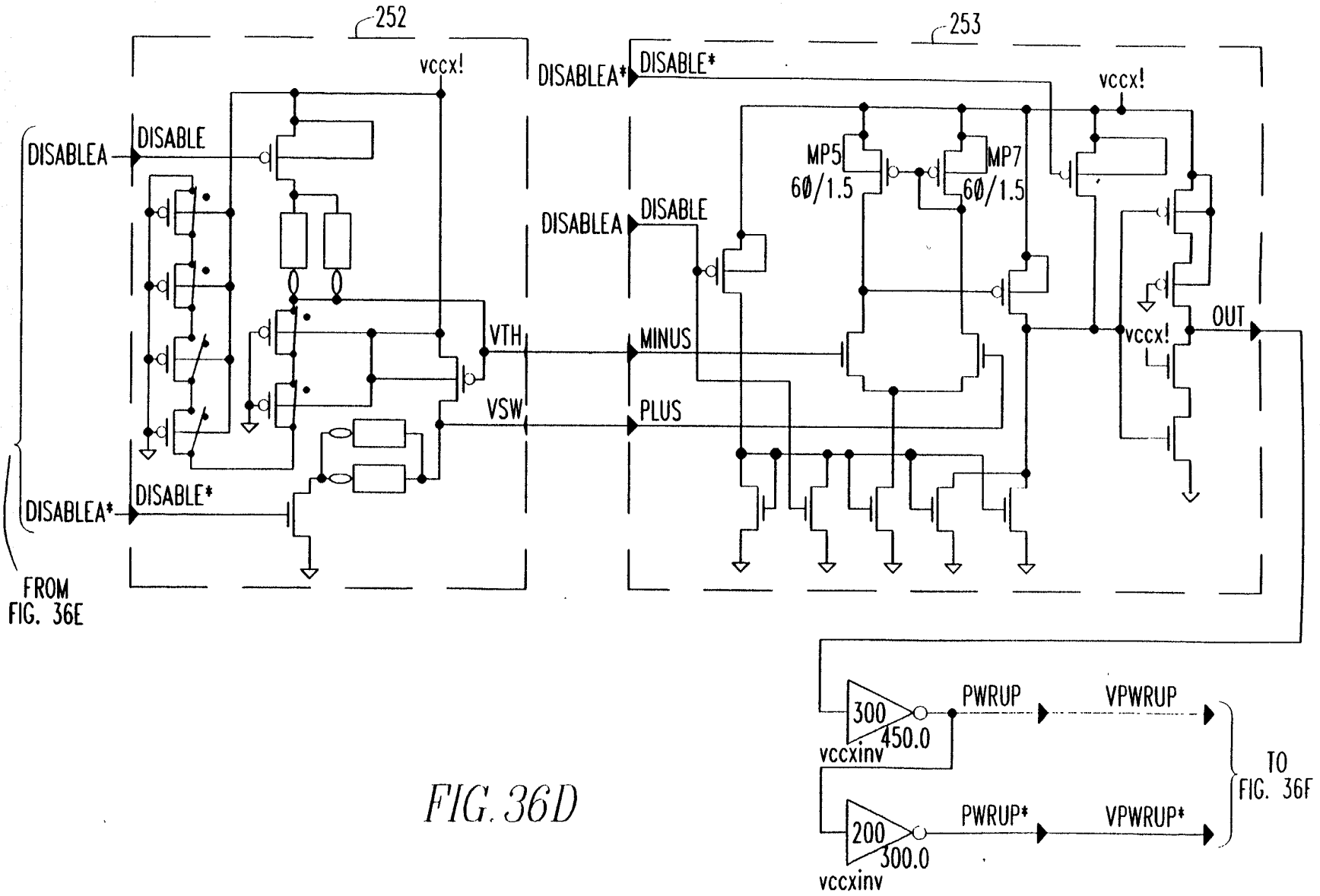
252
253
vccx!
DISABLEA*
DISABLE*
DISABLEA
DISABLE
MP5
60/1.5
MP7
60/1.5
VTH
VSW
MINUS
PLUS
OUT
DISABLEA*
DISABLE*
FROM
FIG. 36E
300
450.0
vccxinv
PWRUP
VPWRUP
200
300.0
vccxinv
PWRUP*
VPWRUP*
TO
FIG. 36F
144 367

FIG. 36D

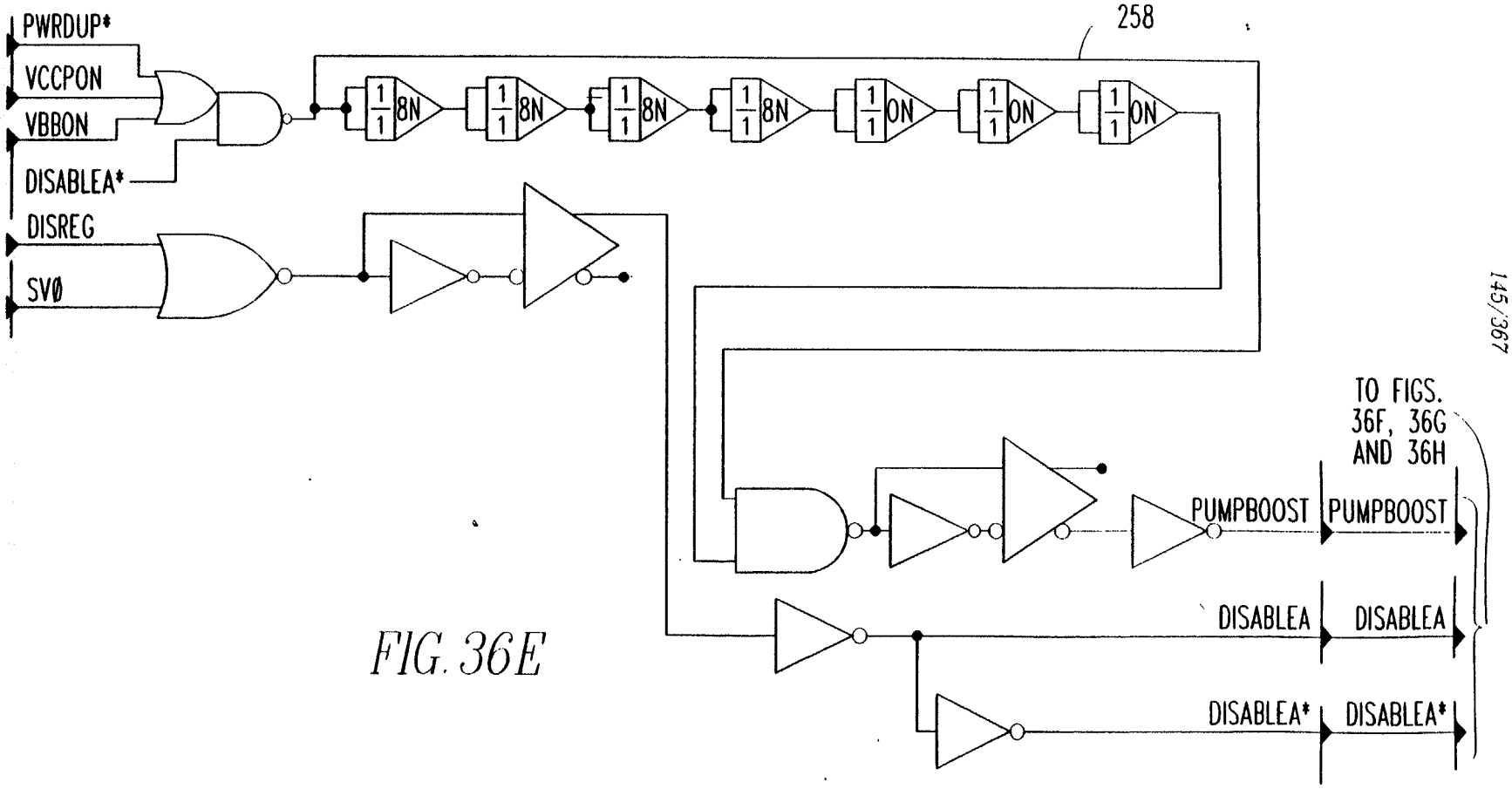
PWRDUP*
VCCPON
VBBON
DISABLEA*
DISREG
SV0
258
1/1 8N
1/1 8N
1/1 8N
1/1 8N
1/1 0N
1/1 0N
1/1 0N
TO FIGS. 36F, 36G AND 36H
PUMPBOOST
PUMPBOOST
DISABLEA
DISABLEA
DISABLEA*
DISABLEA*

FIG. 36E

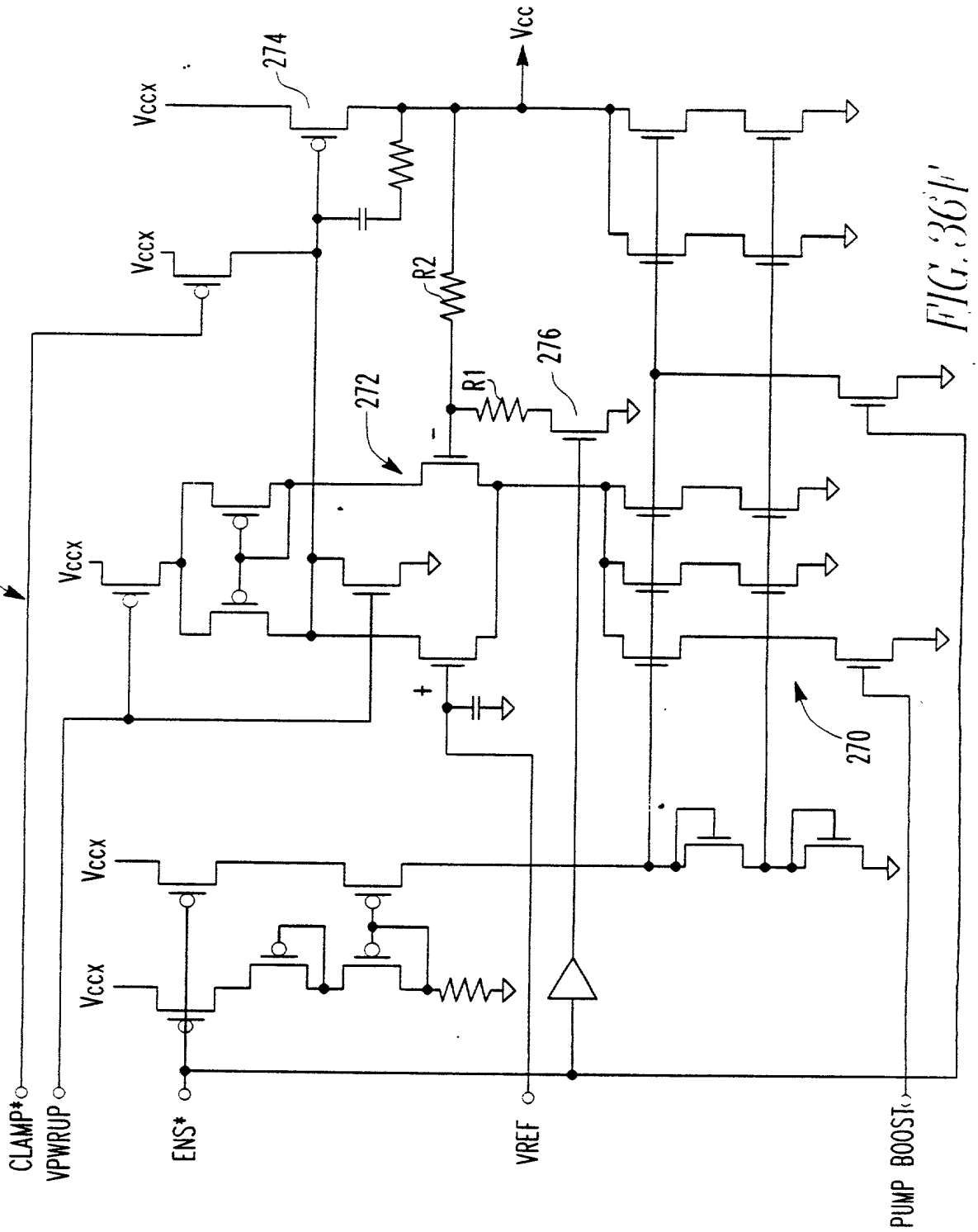
Vcc
Vccx
274
R2
R1
276
272
260
270
CLAMP*
VPWRUP
ENS*
VREF
PUMP BOOST

FIG. 36F

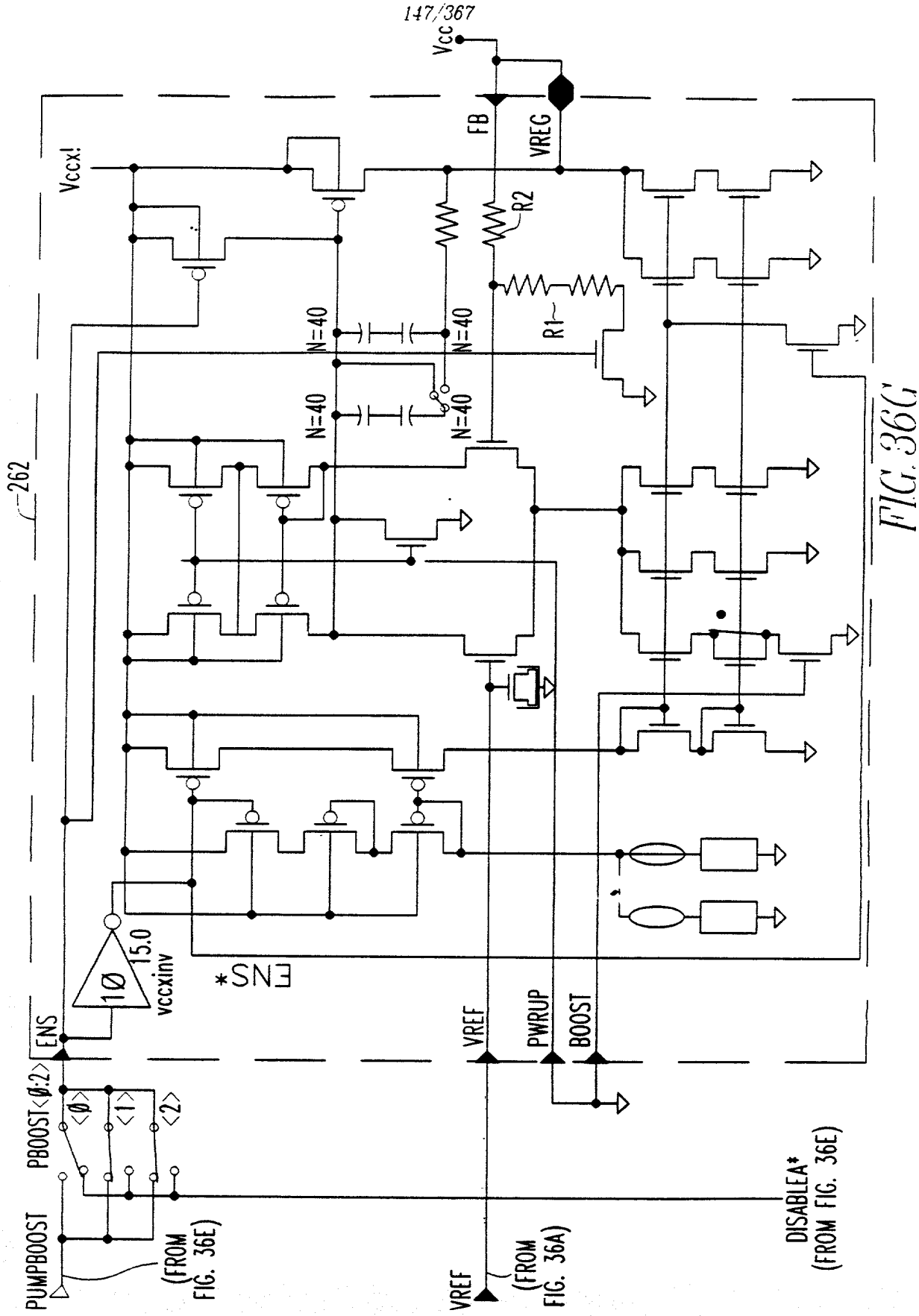
Vcc
FB
VREG
Vccx!
R2
R1
N=40
N=40
N=40
N=40
262
1Ø
15.0
vccxinv
ENS*
ENS
VREF
PWRUP
BOOST
PBOOST<Ø:2>
<Ø>
<1>
<2>
PUMPBOOST
(FROM FIG. 36E)
VREF
(FROM FIG. 36A)
DISABLEA*
(FROM FIG. 36E)

FIG. 36G

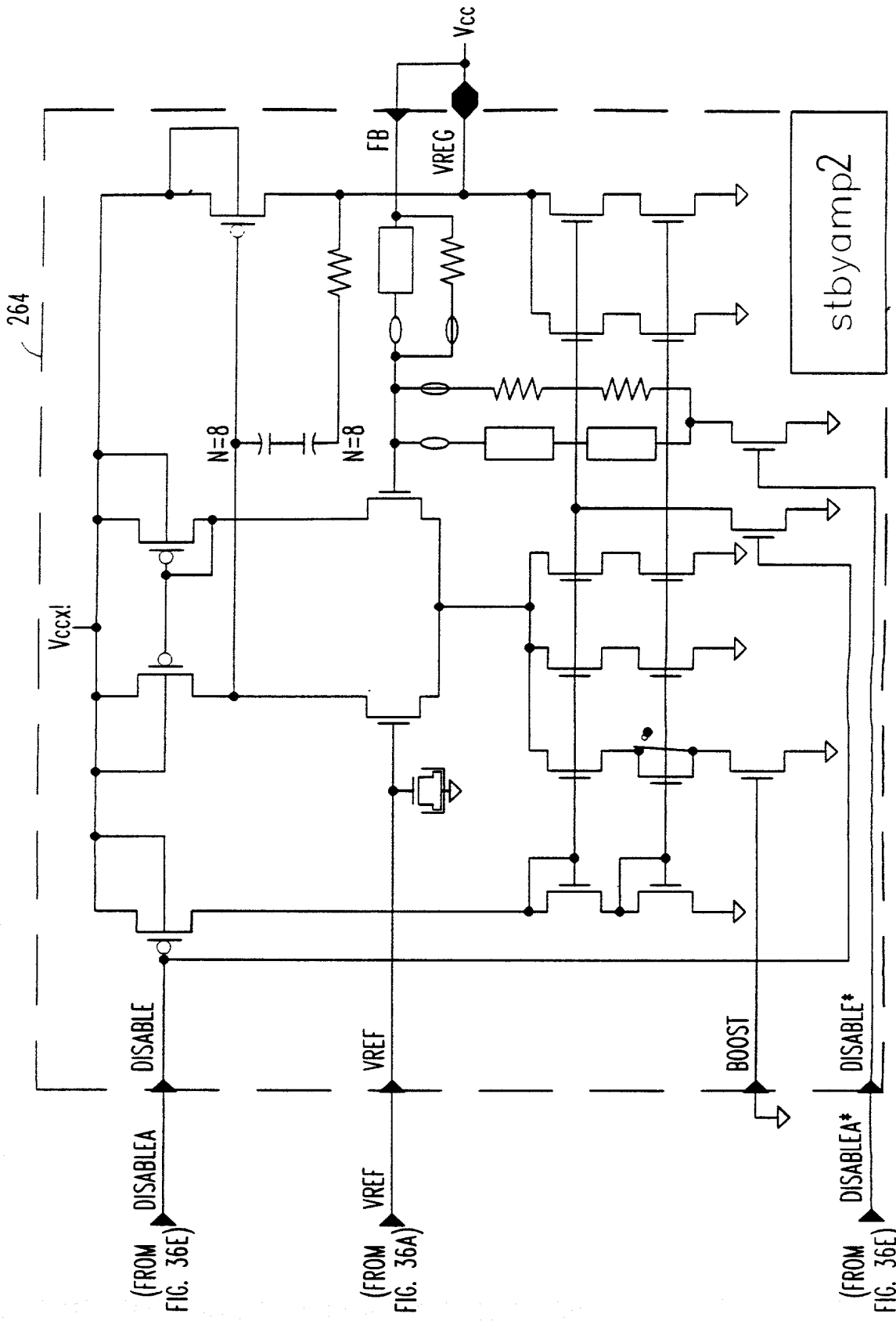
Vcc
FB
VREG
stbyamp2
264
N=8
N=8
Vccx!
DISABLE
VREF
BOOST
DISABLE*
DISABLEA
VREF
DISABLEA*
(FROM FIG. 36E)
(FROM FIG. 36A)
(FROM FIG. 36E)

FIG. 36H

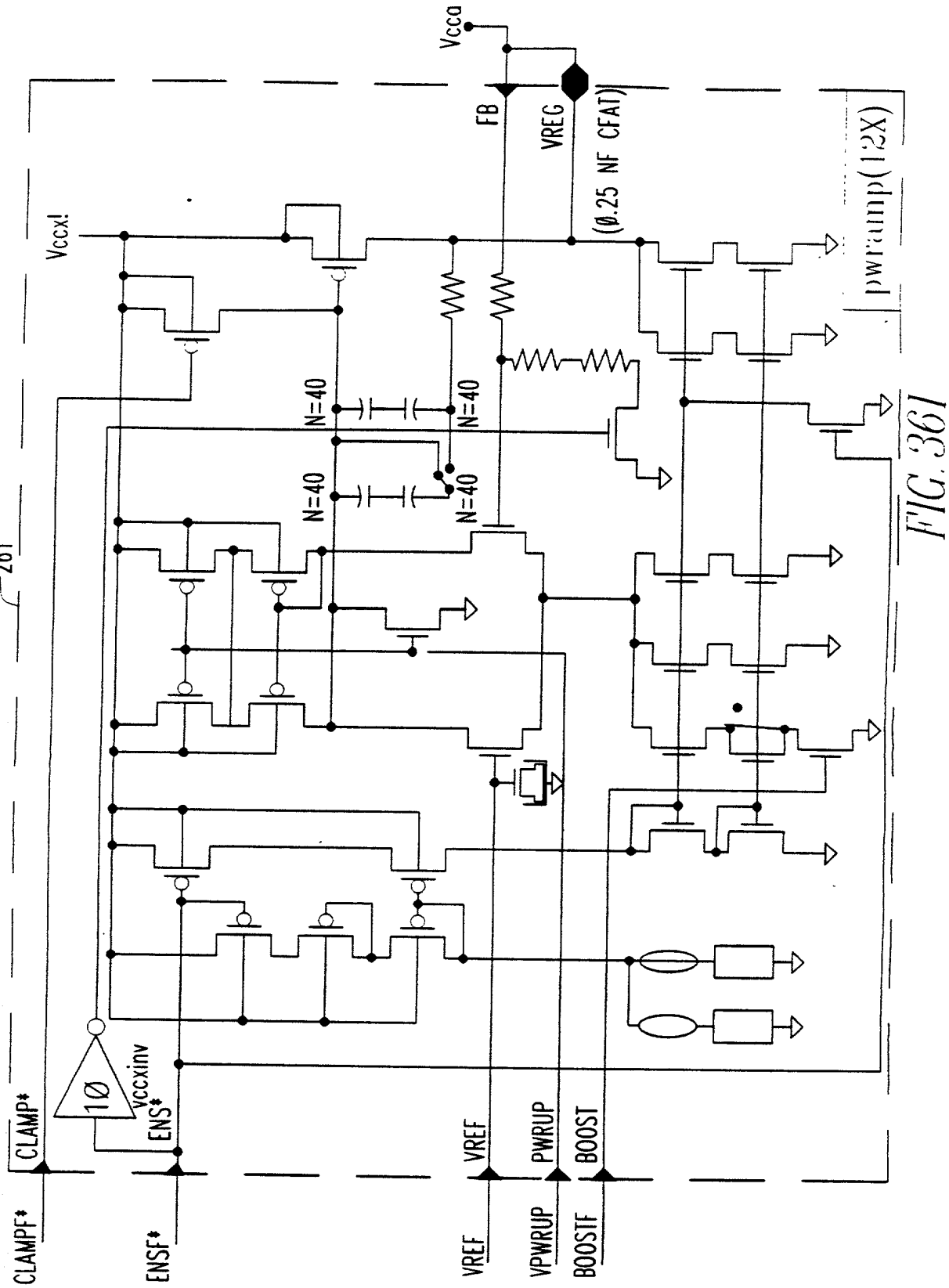
Vccx!
Vccq
FB
VREG
(Ø.25 NF CFAT)
pwrramp(12X)
N=40
N=40
N=40
N=40
261
1Ø
Vccxinv
CLAMP*
ENS*
VREF
PWRUP
BOOST
CLAMPF*
ENSF*
VREF
VPWRUP
BOOSTF

FIG. 361

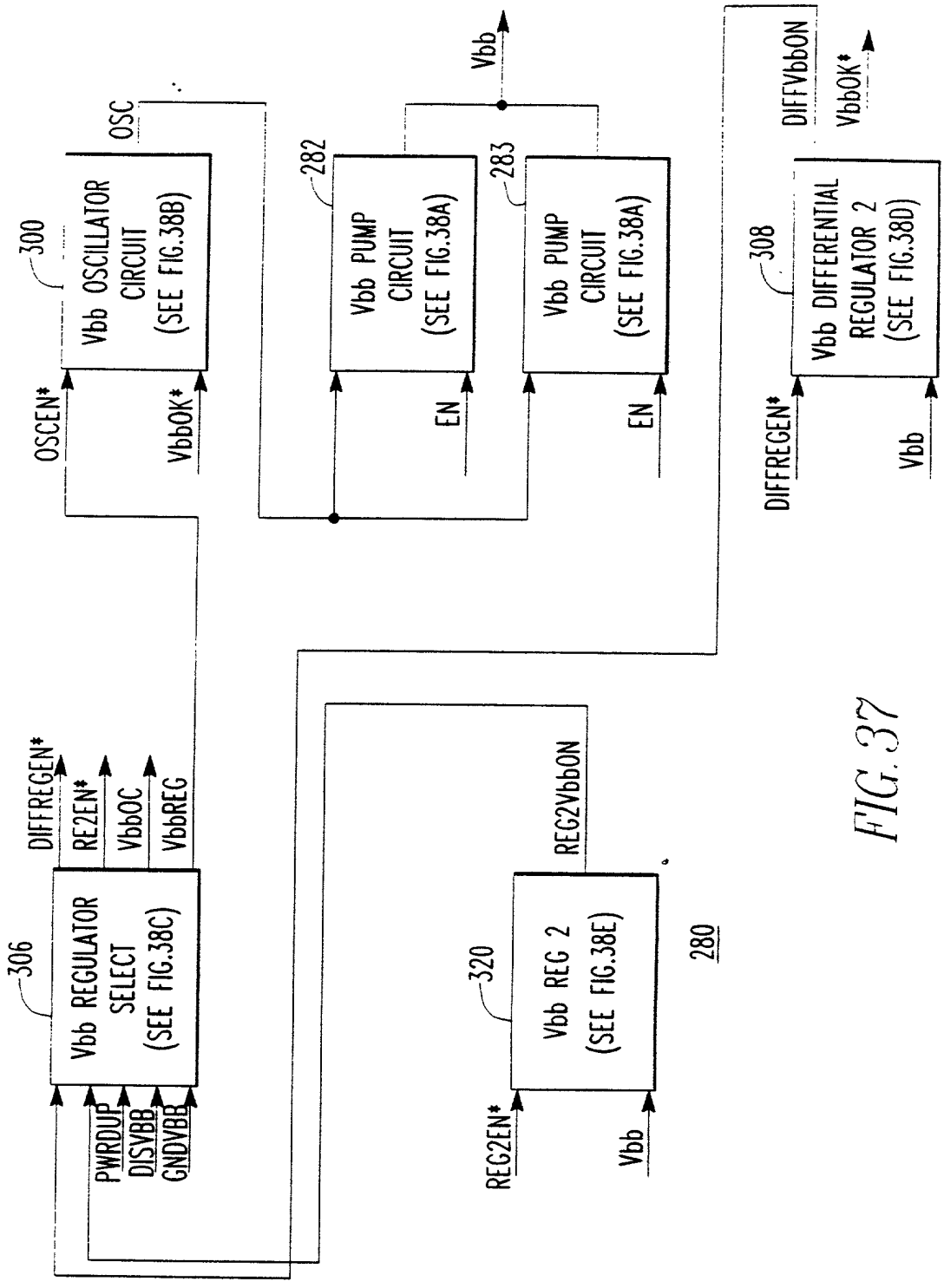
300
Vbb OSCILLATOR CIRCUIT (SEE FIG.38B)
OSC
OSCEN*
VbbOK*
282
Vbb PUMP CIRCUIT (SEE FIG.38A)
283
Vbb PUMP CIRCUIT (SEE FIG.38A)
Vbb
EN
EN
308
Vbb DIFFERENTIAL REGULATOR 2 (SEE FIG.38D)
DIFFVbbON
VbbOK*
DIFFREGEN*
Vbb
306
Vbb REGULATOR SELECT (SEE FIG.38C)
DIFFREGEN*
RE2EN*
VbbOC
VbbREG
PWRDUP
DISVBB
GNDVBB
320
Vbb REG 2 (SEE FIG.38E)
REG2VbbON
REG2EN*
Vbb
280

FIG. 37

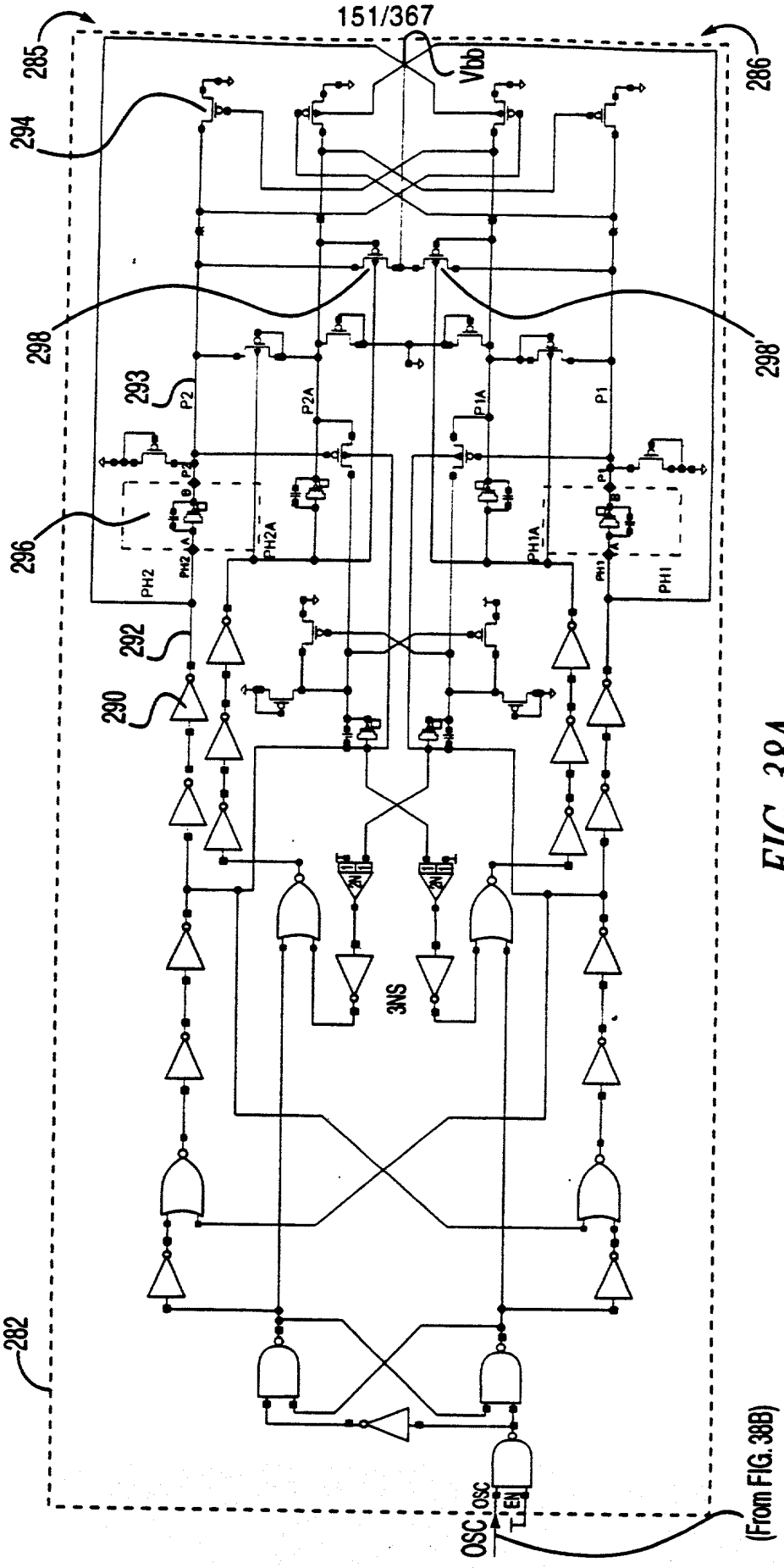
285
286
294
298
298'
293
296
292
290
282
Vbb
P2
P2A
P1A
P1
PH2
PH2A
PH1A
PH1
3NS
OSC
OSC
EN
(From FIG. 38B)

FIG. 38A